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VIRGINIA'S FORESTS

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By

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A FOREST SURVEY PROGRESS REPORT

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PREFACE

This preliminary report has been prepared to make available, in advance of more complete unit and State reports, certain basic data to facilitate the conduct of public and private forest enterprises and to furnish the War Production Board with information on the volume, quality, and availability of critical timber species. The report is a contribution of the Forest Survey organized by the Forest Service to carry out the provisions of the McSweeny-McNary Act of May 1928. This act authorized the Secretary of Agriculture to conduct a comprehensive nation-wide survey of forest resources.

The field work in connection with this report was done in 1940 by the Appalachian Forest Experiment Station, and involved the following major items:

1. Determination of the extent, location, and condition of forest lands, and the quantity and character of the timber on these lands.

2. Determination of the current rate of timber growth.

3. Determination of industrial and domestic wood use, and the total loss from fire, insects, disease, suppression, and from other causes.

Information on the existing forest resources was obtained by means of 31,400 quarter-acre plots established at intervals of one-eighth of a mile on compass lines 10 miles apart, sampling the entire State. The statistical sample obtained from the plot records forms the basis for all area and volume estimates in this report. Data on consumption of forest products for industrial and domestic purposes were obtained in the first half of 1941 by a canvass of all primary manufacturing plants and a number of representative consumers.

The characteristics of Virginia's forests are shown in the accompanying tables for the entire State and separately for the 3 physiographic provinces recognized by the Forest Survey. A large part of the following discussion deals with the forest situation in the State as a whole. For more specific information relative to the physiographic divisions, which differ considerably in forest characteristics, refer to appropriate tables, pages 16 to 59 of the Appendix.

In process of preparation are separate and more complete reports on the Forest Survey findings in the Coastal Plain, Piedmont, and Mountain units or provinces of the State. In addition, a comprehensive report on the forest resources of the entire State eventually will be prepared.

VIRGINIA'S FORESTS

Forest Area and Types

The present commercial forest occupies 14.4 million acres,[1] 56 percent of the total land area (table 1). Seven major forest types are recognized, each representing broad characteristics of forest composition but each made up of minor associations of trees (fig. 1). Most characteristic of the Coastal Plain province are the loblolly and bottomland hardwood types. Shortleaf pine[2] and Virginia pine types are more prevalent on the Piedmont than elsewhere. White pine and the cove hardwood types[3] are confined mostly to the Mountains. The upland hardwood type is found in the Mountains, Piedmont, and to a lesser extent in the Coastal Plain. In the State as a whole hardwood types predominate, occupying 8.2 million acres with softwood types second, occurring on 6.2 million acres (table 2).

Species

The fifty or more commercial tree species found in Virginia have been classified into 5 major species groups; oaks, gums and yellowpoplar, other hardwoods, yellow pines (loblolly, shortleaf, and Virginia), and other softwoods. On the basis of total cubic volume yellow pines, with 36 percent of total, are most prevalent (table 3). Oaks comprise 30 percent of the stand, the gums-yellowpoplar 17 percent, other hardwoods 14 percent, and other softwoods only 3 percent.

Condition

A classification of the forest area according to its condition with respect to size, age, and cutting history of the timber, discloses that 50 percent of the total area is in saw-timber stands, 45 percent is in cordwood, and only 5 percent[4] is reproduction (table 2). Significant are the facts that of the total forest area only 2 percent is in old-growth and the remainder, or 98 percent, is in second-growth.

1/Does not include 235,900 acres of State and Federal forest lands (78 percent in the Shenandoah National Park, 15 percent in numerous Federal monuments, cemeteries, military and similar areas, and 7 percent in various State parks) upon which cutting is prohibited and 184,900 of forest land too poor to produce commercial timber. These areas were not inventoried and are not included except in land use tables in Appendix.

2/A variation of the shortleaf pine type (shortleaf-pitch pine) is found in the Mountain province. This is shown separately in figure 1 but is combined with the shortleaf pine type elsewhere.

3/Although the aggregate area of cove hardwoods is large, individual tracts are too small to be shown on the State map.

4/Clearcut or otherwise denuded forest land amounting to about 0.1 percent (18,600 acres) of the commercial forest area is included with the reproduction condition.

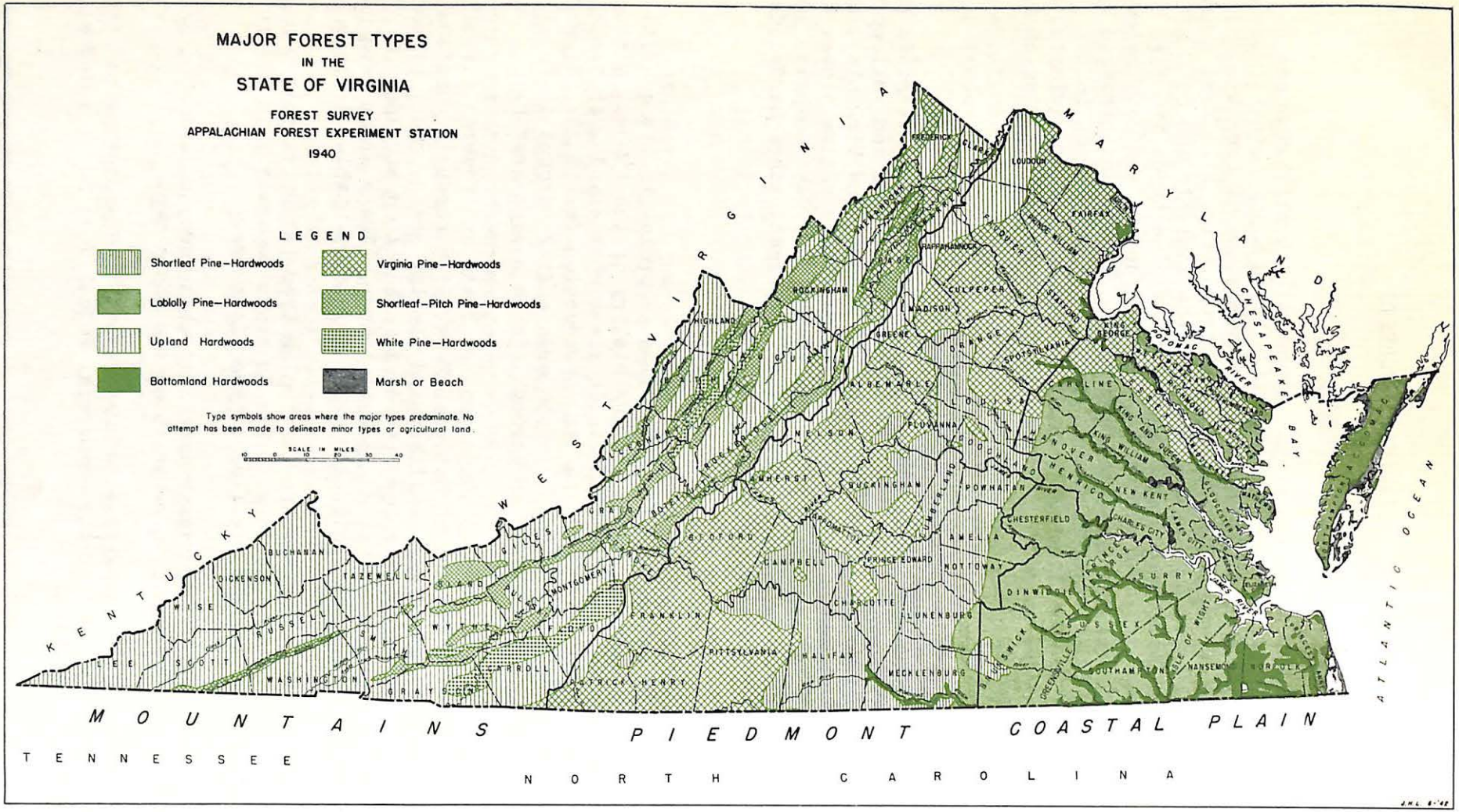
MAJOR FOREST TYPES
IN THE
STATE OF VIRGINIA
FOREST SURVEY
APPALACHIAN FOREST EXPERIMENT STATION
1940
LEGEND
Shortleaf Pine–Hardwoods
Loblolly Pine–Hardwoods
Upland Hardwoods
Bottomland Hardwoods
Virginia Pine–Hardwoods
Shortleaf–Pitch Pine–Hardwoods
White Pine–Hardwoods
Marsh or Beach
Type symbols show areas where the major types predominate. No attempt has been made to delineate minor types or agricultural land.
SCALE IN MILES
10 0 10 20 30 40
KENTUCKY
WEST VIRGINIA
VIRGINIA
MARYLAND
DELAWARE
ATLANTIC OCEAN
CHESAPEAKE BAY
POTOMAC RIVER
MOUNTAINS
PIEDMONT
COASTAL PLAIN
TENNESSEE
NORTH CAROLINA
FREDERICK
CLARKE
LOUDOUN
FAIRFAX
PRINCE WILLIAM
STAFFORD
FAUQUIER
WARREN
SHENANDOAH
PAGE
ROCKINGHAM
RAPPAHANNOCK
CULPEPER
HIGHLAND
MADISON
GREENE
ORANGE
SPOTSYLVANIA
KING GEORGE
ALBEMARLE
LOUISA
CAROLINE
KING WILLIAM
KING AND QUEEN
ESSEX
LANCASTER
NORTHUMBERLAND
NELSON
FLUVANNA
GOOCHLAND
HANOVER
NEW KENT
GLOUCESTER
AMHERST
BUCKINGHAM
POWHATAN
CHESTERFIELD
JAMES CITY
YORK
BEDFORD
CAMPBELL
PRINCE EDWARD
AMELIA
NOTTOWAY
CHARLES CITY
SURRY
BUCHANAN
DICKENSON
TAZEWELL
BLAND
MONTGOMERY
PULASKI
WISE
RUSSELL
WYTHE
FLOYD
FRANKLIN
CHARLOTTE
LUNENBURG
DINWIDDIE
LEE
SCOTT
WASHINGTON
GRAYSON
CARROLL
PATRICK HENRY
PITTSYLVANIA
HALIFAX
BRUNSWICK
MECKLENBURG
GREENSVILLE
SOUTHAMPTON
NANSEMOND
NORFOLK
ISLE OF WIGHT
JHL 8-48

FIGURE 1

Board-Foot Volume

The total net saw-timber volume, excluding 758.4 million board feet of dead chestnut, is estimated at 24.3 billion board feet (Int. $\frac{1}{4}$-inch rule), consisting of hardwoods and softwoods in about equal proportion (table 4). Ninety-two percent of the softwood volume is made up of the yellow pines, and almost one-half of the board-foot volume in hardwoods is oak. Of the total board-foot volume, 94 percent is in saw-timber stands and the remainder in the cordwood areas.

Trees of small diameter contain most of the saw-timber volume. About three-fifths of the hardwood volume is in trees under 20-inches d.b.h. (table 5). Almost one-half of the softwood volume is in trees under 13-inches d.b.h. and over four-fifths is in trees less than 20-inches.

The average saw-timber stand contains about 3,250 board feet per acre (table 6). The heaviest average saw-timber stand per acre (5,470 board feet) is in the loblolly pine type and the lightest (2,440 board feet) in the upland hardwood type -- the former being the most prevalent pine type and the latter being dominant among the hardwood associations. Saw timber on the cordwood areas averages about 150 board feet to the acre, principally in small trees or in the form of holdovers from a previous stand.

Many of the stands are understocked; 47 percent of the total saw-timber area (52 percent of the hardwood and 40 percent of the pine) bears stands of less than 2,000 board feet per acre (table 7). Saw-timber stands averaging 10,000 or more board feet per acre occupy only 4 percent of the saw-timber acreage. However, most of the board-foot volume, 83 percent, is in stands having volumes of 2,000 or more board feet per acre.

Cordwood Volume

The total sound cordwood volume in living trees 5-inches d.b.h. and larger is approximately 194.9 million standard cords (table 8). About 46 percent of this volume is in sound saw-timber trees -- 64.3 million cords in the sawlog sections and 26.0 million cords in the upper stems of softwoods and the upper stems and limbs of hardwoods -- 39 percent is in sound trees below saw-timber size, and 15 percent is contained in cull trees. Not included are 9.6 million cords of dead chestnut.

There are about 104.9 million cords of species commonly used for pulp; about three-fifths are softwoods, chiefly (96 percent) yellow pine. Four-fifths of the hardwood pulping volume is made up of the gums-yellowpoplar species group.

Forest Growth

In 1940, the net growth -- the increase in growing stock after deducting for mortality but not for volume cut -- was 1.6 billion board feet of saw timber, or 7.9 million cords of all sound material. This

net growth represents an average of 112 board feet or 0.5 cords per acre -- 6.6 percent and 4.0 percent, respectively, of the growing stock. Approximately 53 percent of the net growth, in saw-timber material only, was contributed by the softwood species. However, 54 percent of the growth of all material, including both saw timber and cordwood, was produced by the hardwoods.

Industrial Use

In 30 years Virginia's lumber production has declined sharply -- strong evidence of a diminished saw-timber supply. The cut of sawlogs reached its peak in 1909 when 2.1 billion board feet were processed, ranking Virginia sixth among lumber-producing states. By 1940 Virginia had dropped to eleventh in state production, turning out 1.1 billion board feet of lumber or about one-half of that in the peak year (table 12).

In 1940, 2,763 sawmills were in operation (fig. 2). Ninety-seven percent of these mills, sawing almost three-fourths of the lumber, were of the small portable type of less than 10 thousand board feet daily capacity. Two percent of the mills, cutting about 11 percent of the lumber, had daily capacities of 10 to 20 thousand board feet, and only one percent of the mills, producing about 16 percent of the lumber, had larger capacities. Two-thirds of these larger mills, as well as most of those of medium size, were located in the Coastal Plain. Of the small portable mills the greatest concentration (44 percent) was in the Piedmont and the next greatest (37 percent) in the Mountains. Although the Coastal Plain contained the lowest number of small mills, a total of 507, they far outnumbered the larger mills.

Large mills are usually associated with areas of more abundant saw timber, larger logs, and more extensive holdings by forest industries, which at least partly explains a greater abundance of these plants in the Coastal Plain than elsewhere. The Coastal Plain contains only one-fourth of the State's forest area, yet one-half of the State's saw-timber volume is located there. Furthermore, about 70 percent of the total softwood saw timber in trees over 14-inches d.b.h. and more than a proportionate share of the larger diameter hardwoods are found within this province. Although only about 13 percent of the forest land is controlled by forest industry, the total area considerably exceeds that of similar ownership in the Piedmont or Mountains. Notwithstanding the presence of some large plants in the Coastal Plain, most of the lumber cut there, as well as in other sections of the State, is by portable sawmills; demonstrating that small timber holdings, small-scale logging, small mills, and part-time operation and employment characterize Virginia's lumber industry.

In 1940, more wood was consumed by non-lumber plants and for poles, piling, hewn crossties, mine timbers, fuel wood, and fence posts than for lumber (table 12). One hundred and fifty-six plants, in addition to the sawmills, were using wood as a primary source of raw material (fig. 3). Among the largest of these were the 9 pulp mills, 4 of which were located in the Coastal Plain, 3 in the Mountains, and 2 in the Piedmont. The most numerous plants, excluding sawmills, were 69 cooperage mills, largely

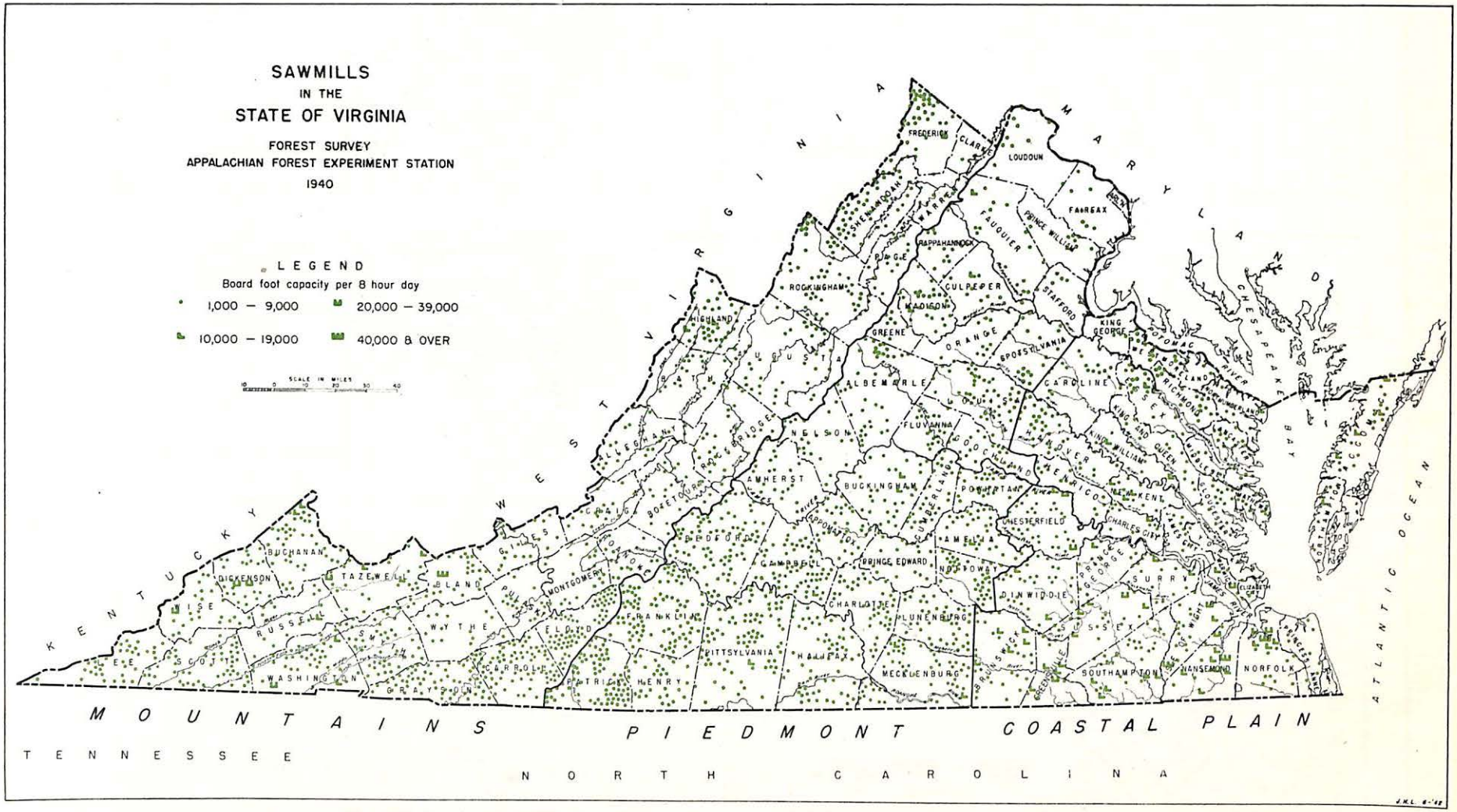
SAWMILLS
IN THE
STATE OF VIRGINIA
FOREST SURVEY
APPALACHIAN FOREST EXPERIMENT STATION
1940
LEGEND
Board foot capacity per 8 hour day
1,000 — 9,000
10,000 — 19,000
20,000 — 39,000
40,000 & OVER
SCALE IN MILES
WEST VIRGINIA
MARYLAND
KENTUCKY
TENNESSEE
NORTH CAROLINA
ATLANTIC OCEAN
CHESAPEAKE BAY
MOUNTAINS
PIEDMONT
COASTAL PLAIN
FREDERICK
CLARKE
LOUDOUN
FAIRFAX
PRINCE WILLIAM
WARREN
SHENANDOAH
RAPPAHANNOCK
FAUQUIER
CULPEPER
STAFFORD
ROCKINGHAM
HIGHLAND
MADISON
GREENE
ORANGE
SPOTSYLVANIA
KING GEORGE
ALBEMARLE
CAROLINE
NELSON
FLUVANNA
HANOVER
KING AND QUEEN
KING WILLIAM
AMHERST
BUCKINGHAM
POWHATAN
CHESTERFIELD
CHARLES CITY
BEDFORD
CAMPBELL
APPOMATTOX
AMELIA
PRINCE EDWARD
NOTTOWAY
DINWIDDIE
SURRY
CHARLOTTE
LUNENBURG
PITTSYLVANIA
HALIFAX
MECKLENBURG
BRUNSWICK
SOUTHAMPTON
ISLE OF WIGHT
NANSEMOND
NORFOLK
BUCHANAN
DICKENSON
TAZEWELL
RUSSELL
WASHINGTON
SMYTH
WYTHE
BLAND
GILES
MONTGOMERY
PULASKI
CARROLL
GRAYSON
FLOYD
FRANKLIN
PATRICK
HENRY

FIGURE 2

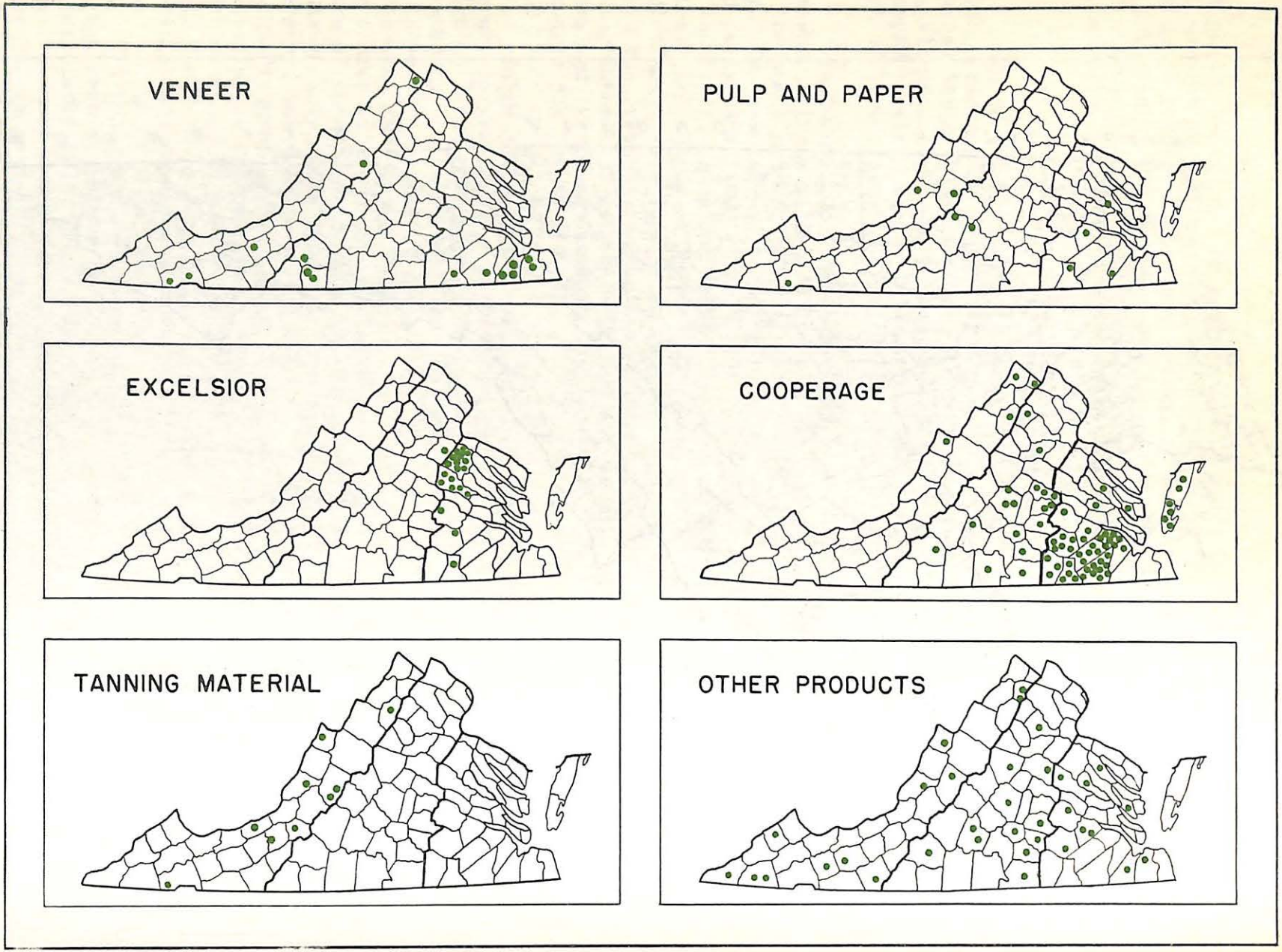

FIGURE 3 - OTHER PRIMARY FOREST PRODUCTS PLANTS IN VIRGINIA, 1940.

engaged in making nail keg staves. Other plants made excelsior, tanning extract, veneer, or miscellaneous products including handles, insulator pins, shingles, and boxes. Altogether, about 1.2 million cords of wood were used in these plants and 4.3 million cords were used for fuel wood, mine timbers, and other rough products. This was about 2.5 million cords more than the volume of sawlogs used by the lumber industry.1/

Commodity Drain

The total amount of wood cut (commodity drain) in 1940 for all uses, including that shipped outside the State, was 1.3 billion board feet of saw timber or 5.1 million cords2/ of all sound material (table 13). This drain includes both the utilized and wasted portions of the trees cut.

In Board Feet

Approximately two-thirds of the drain, in saw-timber material only, consisted of softwood species, chiefly (95 percent) yellow pines. Slightly over one-half of the hardwood saw-timber drain was oak. About three-fourths of the drain in softwood saw timber and a shade over one-half of that in hardwood was taken from trees under 20-inches d.b.h.

In Cords

Of the drain of all sound material, 5-inches d.b.h. and larger, 2.7 million cords (53 percent) was taken in the form of sawlogs for the production of lumber, timbers, and ties. Next in importance was fuel wood, which amounted to 1.1 million cords, or 22 percent of the total drain. About 0.7 million cords went into pulpwood and the remainder, 0.6 million cords, went to other uses principally cooperage, mine timbers, and fence posts.

By Provinces

Eighty-two percent of the total commodity drain, in equal proportions, was in the Coastal Plain and Piedmont provinces and only 18 percent in the Mountains. The large drain in the Coastal Plain and Piedmont reflects, at least in part, a greater concentration of forest industries, a more productive forest, and a larger proportion of commercially desirable species (loblolly and shortleaf pines) in these provinces than in the Mountains.

1/Wood volumes quoted above include wood brought in from outside the State as well as that cut in the State.

2/Drain expressed in cords, in addition to sawlog portions of trees cut, includes the usable volumes in the upper stems of softwood saw timber and in small trees 5.0 inches d.b.h. to saw-timber size.

By Species-Groups

Fifty-eight percent of the total drain for all commodities consisted of yellow pine, chiefly loblolly and shortleaf. Most of the yellow pine was cut in the Coastal Plain and Piedmont, where this species-group constituted 75 and 61 percent, respectively, of the total drain. Only in the Mountains was the drain predominantly in hardwoods -- comprising, in that province, about 79 percent of the total. For the State as a whole, however, only 37 percent of the total drain was in hardwoods -- principally oaks.

By Diameter Classes

An analysis of total commodity drain by tree diameter classes shows that 66 percent of the 1940 cut was in trees 10- to 20-inches d.b.h., and that about one-half of this amount was in small trees, 10- and 12-inches. About 16 percent of all drain was in trees under 10-inches and approximately 18 percent was in the large trees, 20-inches and over. The distribution of the total drain in cubic feet by diameter class in each physiographic province was as follows:

Diameter class	Coastal Plain	Piedmont	Mountain
Inches	Percent	Percent	Percent
6-8	11	18	18
10-18	67	71	55
20 and over	22	11	27
All diameters	100	100	100

Future Timber Supplies

Any forecast of the future timber supply for large areas is a difficult undertaking, because of the many factors which affect the growth and development of the forest. Among the principal elements involved are normal commodity drain, excessive drain such as that brought about by war demands, the growth rates of individual trees and stands, mortality, cutting practices, and stand composition. Variations in any one of these items may be sufficient to upset even the most carefully computed predictions. Nevertheless, a forecast even though more qualitative than quantitative may be helpful to forest industries, public forestry organizations, and other public and private agencies vitally interested in the future supply of timber.

A comparison between the net growth and drain in 1940 shows a net increase of 1.3 percent in the saw-timber growing stock and 1.8 percent in the total volume in sound trees 5-inches d.b.h. and larger (table 14). Assuming that all growth was on trees that eventually will be cut, the over-all picture as to the future timber supply appears favorable. But, within certain species and diameter groups the situation is not as good as

that indicated by a growth surplus for the State and continued cutting at a rate equal to or greater than 1940 may create serious problems for the industries and localities concerned. A case in point is found in the Coastal Plain where the total drain upon the cedar and cypress was 3 times the net increment, and the total growing stock was being reduced in all diameter classes. Continued heavy cutting, as in 1940, 1941, and 1942 probably will result in the virtual elimination of white-cedar saw timber by 1950. Furthermore, there was an inadequate amount of young-growth to assure a significant quantity of white-cedar sawlogs at any time in the future. The cypress may last longer but, at the present rate of cutting, it is a disappearing species in Virginia.

Of greater economic importance than white-cedar and cypress are the oaks, gums and yellowpoplar, and the yellow pine (shortleaf, loblolly, and Virginia) species groups. Nearly sixty percent of the wood cut in 1940 consisted of the yellow pines and about four-fifths of that cut from this species-group was from loblolly and shortleaf. In the same year, 23 percent of all the wood harvested was oak and 10 percent gums and yellow-poplar. It is quite obvious that present-day primary wood-using industries are organized largely for processing one or the other of the above species groups. Hence, a forecast as to the probable future supply of these groups is most important.

The Supply of Oak

Assuming a rate of cutting equal to that of 1940 and also that the cut is distributed to all species, the possibilities for a sustained yield of oak are encouraging, although much of the oak is second-growth and a significant proportion is made up of lower quality species.1/ Thus, trees of high quality, suitable for speciel uses such as ship timbers, are becoming increasingly hard to find. Over the State, the 1940 surplus of growth over drain involved all diameters 5-inches d.b.h. and larger (tables 15 and 16). As a result, the saw-timber growing stock increased 1.8 percent and the total stand gained 1.7 percent in cubic volume. Trees 20-inches and over d.b.h. in the Mountain province were being overcut at a rate which, if continued, would soon eliminate most of the larger oaks in that section. However, a large area (1.3 million acres) in the Mountains is in national forest where cutting practices are so modified that a permanent supply of large oaks -- although probably inadequate to meet all industrial requirements -- should be available. In all provinces a supply of oak under 20-inches d.b.h., equal to or greater than that of the present, can be maintained providing the rate of cutting does not exceed that of 1940. This is also true of larger diameter oaks in the Coastal Plain and Piedmont where growth surpluses also existed in trees 20-inches and over.

1/The percent distribution of the oaks based on cubic volume in trees 5.0 inches d.b.h. and over is: white oak 34, chestnut oak 19, northern red oak 12, other red oaks 32, and other white oaks 3.

The Supply of Gums and Yellowpoplar

Except in the 10- and 12-inch diameter class in the Mountains, the 1940 net growth of gums and yellowpoplar exceeded drain in all diameters and in every province. As a result of the surplus growth the saw timber and total growing stock increased by 3.7 and 3.2 percent, respectively. Hence, it is indicated that the gums and yellowpoplar, as a species group, will continue to increase in volume at a fairly rapid rate providing the cut is maintained around the 1940 level. The chief danger is that the commercial preference for sweetgum and yellowpoplar -- both critical species for war use -- will cause serious shortages of these more desirable species in many localities.

The Supply of Virginia Pine

From the facts on hand it appears that the total quantity of Virginia pine will continue to increase, unless the drain materially exceeds the 1940 level. Board-foot growing stock showed a net gain of 3.2 percent during the year, and the total stand, 5-inches d.b.h. and larger, an addition of 4.0 percent. In other words, the rate of increase of the total Virginia pine growing stock was greater than that of any other major species-group in the State. Overcutting occurred among small saw-timber trees of the Coastal Plain, in those of medium size in the Mountains, and in large saw-timber of the Piedmont. But, the growth surpluses in trees of other diameters were sufficient to effect a net gain in the total growing stock in each province.

The favorable situation as to Virginia pine can be attributed to at least 2 factors: (1) the species reproduces aggressively, thus enabling the tree to invade abandoned fields and to establish itself quickly in burned-over areas; (2) it is typically a rather short, crooked, and limby tree, and because of these characteristics, industry prefers shortleaf and loblolly rather than Virginia pine for such uses as lumber and pulpwood. Yet, even now, Virginia pine accounts for about one-fifth of the volume of yellow pine cut for pulpwood; and, because of the existent large area and volume, it is believed that the industrial use of the species will increase.

The Supply of Shortleaf and Loblolly Pines

The future supply of shortleaf and loblolly pines is not as promising as that of the oaks and Virginia pine. In 1940 the saw-timber growing stock was reduced by 0.5 percent although the total stand increased by about 0.1 percent. The decrease in the saw-timber stand was caused by excessive cutting of trees 10- and 12-inches d.b.h. and 20-inches and over. The small increase in total cubic volume resulted from surpluses in 6- and 8-inch and 14- and 18-inch trees. It is apparent that for the State as a whole the margin of safety is extremely small. Any significant increase in commodity drain such as has been brought about by present war demands -- if maintained over a period of years -- most likely will cause a serious loss in growing stock. This is especially true in certain sections of the State where, even in 1940, overcutting was quite heavy.

A clearer insight as to the future supply of loblolly and shortleaf pine may be had by analyzing the situation in the Coastal Plain and Piedmont where 94 percent of the net sound volume in trees 5-inches d.b.h. and larger of these species is found. In making this analysis the following assumptions must hold: (1) that volume recruiting into the 6- and 8-inch diameter class is maintained at the 1940 level, (2) the ratio of inventory to volume recruiting out of any diameter class is the same as in 1940, (3) the growth of trees in any diameter class is similar to that of 1940, and (4) the proportionate distribution of drain by diameter classes remains the same as in 1940.

The total growing stock of shortleaf and loblolly pine -- 92 percent of which is shortleaf pine -- in the Piedmont was reduced 1.2 percent by the commodity drain of 1940. If excessive cutting such as this is continued, all trees above 13-inches d.b.h., for all practical purposes, will be gone within 30 years (table I) in spite of recruitment from smaller diameters. Surviving at that time, would be small saw-timber trees, 10- and 12-inches, and cordwood trees of 6- and 8-inches -- primarily a pulpwood stand. An increased drain, such as has occurred since 1940, has already added momentum to the rate of growing stock depletion. A satisfactory saw-timber stand might again be developed, but with the growing stock in such a condition a considerable lapse of time would be necessary. Furthermore, during the period of restoration it would be absolutely necessary that drain be maintained below growth -- a status that might be difficult to achieve with a depleted growing stock. Hence, for the sake of future lumber production there is an obvious need for reducing the annual drain below that of 1940, particularly in the southern part of the Piedmont where conditions are most acute.

Table I. - Possible changes in volume and distribution of the shortleaf and loblolly pine growing stock in the Virginia Piedmont at two levels of commodity drain over a 30-year period

Diameter class	Growing stock 1940	Growing stock change 1940 to 1970	
		Drain at 1940 level	Drain at 15 percent below 1940 level
Inches	Million cu. ft.	Percent	Percent
6-8	282	+50	+63
10-12	283	-14	+37
14-16	113	-100	+16
20 and over	18	-100	-100
Total	696	-4	+41

As shown in table I, the Piedmont situation could be improved somewhat if annual drain were maintained at about 15 percent below the 1940 level -- a modification that probably would not seriously upset a forest

economy similar to that of 1940. With this small reduction in annual cut, an increase of about 282.2 million cubic feet (41 percent) in total growing stock could be effected in about 30 years. Volume increases would occur in all but the large saw-timber trees, 20-inches d.b.h. and larger, and the loss in that diameter class would be more than offset by the gain in other sizes. In truth, the stand would be far from ideal, but certainly a much better one than would result from a continuation of the 1940 drain. The loss of the large saw-timber trees, although undesirable, probably would not create much of a hardship as present-day industry is adapted to the processing of small logs, and even now only 9 percent of the total growing stock consists of trees 20-inches and larger. More important is the fact that the growing stock in the remaining diameter classes would more than hold its own, and with continued judicious cutting will be able to provide a sustained timber supply sufficient to meet most industrial requirements comparable to the 1940 demand.

In the Coastal Plain, where 91 percent of the loblolly-shortleaf growing stock is loblolly pine, the outlook as to a future supply of these species is better than that of the Piedmont. Although trees 10- and 12-inches and 20-inches and larger were overcut in 1940, the growth surpluses in other sizes were sufficient to create a net increase in the total stand of 0.7 percent. Assuming a continued annual cut of the same quantity as in 1940, there will be an appreciable build-up in both quality and volume over a 30-year period (table II). At that rate of cutting, the growing stock can be expected to increase from 2.0 billion cubic feet in 1940 to 3.5 billion cubic feet in 1970, a net gain of 73 percent. The 20-inch and larger class would decrease until about 1945 but then the influx of volume from trees of smaller diameters will begin to take effect and the 20-inch class will gradually increase. Actually the volume distribution by diameter classes would be a decided improvement over the 1940 stand.

Table II. - Possible changes in volume and distribution of the loblolly and shortleaf pine growing stock in the Virginia Coastal Plain at two levels of commodity drain over a 30-year period

Diameter class	Growing stock 1940	Growing stock change 1940 to 1970	
		Drain at 1940 level	Drain at 25 percent above 1940 level
Inches	Million cu. ft.	Percent	Percent
6-8	527	+45	+28
10-12	735	+42	-2
14-18	620	+122	+12
20 and over	165	+115	-100
Total	2,047	+73	+2

Effect of War Demands

War demands have brought a necessary increase in cutting activity over the entire State. Cutting in 1941 is estimated to have been 20 percent more for sawlog material and 7 percent more for pulpwood than in 1940. Incomplete data indicate that drain in 1942 may also be above that of 1940.

For the State as a whole the total volume of growing stock increased in 1940; in spite of increased cutting the indications are that the growing stock increased in volume in 1941; and there probably also will be a net increase in 1942. This does not mean that the balance between growth and drain is favorable everywhere in the State. In the Coastal Plain it is theoretically possible to increase drain on the shortleaf and loblolly pine growing stock by as much as 25 percent (over 1940) for perhaps 30 years with no loss in total volume although with virtual elimination of trees 20-inches and larger (table II). The oaks and Virginia pine could be cut somewhat more heavily than in 1940. But, shortleaf and loblolly pine in the Piedmont already were being seriously overcut in 1940 as was white-cedar and cypress in the Coastal Plain. Similar shortages exist in other species and localities. Likewise, because the figures for total growth include growth on inferior and non-commercial species, the effective net increment is less than the indicated State totals. Balances between growth and drain for the State as a whole, therefore, must be interpreted with caution and with full appreciation of local situations.

War needs are now drawing more heavily on the better species of high quality for special uses such as truck bodies, airplane veneer, and ship timbers. Other specialized war needs are developing. The indications are that war drain on the forest resource is not as likely to create a deficit in total volume of the growing stock as to cause an appreciable decrease in its quality. Thus, the proportion of inferior species in the growing stock will increase at the expense of the better quality trees, creating future problems of utilization.

A P P E N D I X

Table 1. - Land use in the State of Virginia, 1940

Land use	Land area	
	Acres	Percent
Forest:		
Commercial	14,412,000	56.5
Public reserved	235,900	.9
Non-commercial	184,400	.7
Total	14,832,300	58.1
Non-forest:		
Crop-land	5,954,700	23.3
Abandoned crop-land	380,100	1.5
Pasture	3,424,300	13.4
Marsh	272,500	1.1
Other	671,500	2.6
Total	10,703,100	41.9
All uses	25,535,400	100.0

Table 2. - Forest area of Virginia by forest types and conditions, 1940

Forest type	Forest condition			Total	
	Saw timber	Cord-wood	Repro-duction		
	Acres	Acres	Acres	Acres	Percent
Softwoods:					
Loblolly pine[1/]	1,329,100	580,400	106,300	2,015,800	14.0
Shortleaf pine[2/]	1,010,500	870,400	90,200	1,971,100	13.7
Virginia pine	718,200	1,040,900	248,300	2,007,400	13.9
White pine[3/]	165,900	68,600	1,600	236,100	1.6
Total	3,223,700	2,560,300	446,400	6,230,400	43.2
Hardwoods:					
Bottomland hardwood[4/]	610,300	306,700	50,600	967,600	6.7
Cove hardwood[5/]	316,800	238,400	3,300	558,500	3.9
Upland hardwood	3,004,000	3,447,900	203,600	6,655,500	46.2
Total	3,931,100	3,993,000	257,500	8,181,600	56.8
All types	7,154,800	6,553,300	703,900	14,412,000	100.0

1/Includes pond pine, 12,100 acres.

2/Includes redcedar hardwoods, total 61,600 acres.

3/Includes hemlock, 74,400 acres.

4/Includes cypress, 24,900 acres; white-cedar, 11,300 acres; and stream margin hardwoods, 25,900 acres.

5/Includes northern hardwoods, 128,400 acres.

Table 3. - Species composition of forest types in Virginia, expressed in percent of net cubic volume, 1940

Species	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
Softwoods:								
Pond pine	0.1	- -	- -	- -	negl.	- -	- -	negl.
Loblolly pine	72.7	2.6	4.4	- -	4.4	- -	1.5	17.9
Shortleaf pine	3.5	62.6	7.9	3.0	0.7	0.2	3.0	10.7
Virginia pine	1.6	6.0	56.3	1.8	0.4	0.5	1.6	7.8
White pine	- -	0.4	0.7	31.8	negl.	0.6	0.6	1.0
Hemlock	- -	negl.	negl.	21.8	negl.	1.6	0.2	0.6
Redcedar	0.1	0.9	0.3	0.2	0.1	0.1	0.2	0.3
White-cedar	negl.	- -	- -	- -	1.2	- -	negl.	0.1
Cypress	0.1	- -	- -	- -	4.5	- -	negl.	0.5
Hardwoods:								
Red maple	0.9	0.7	0.7	1.9	8.6	3.2	2.3	2.3
Blackgum	1.8	0.6	0.8	0.8	19.9	1.5	2.6	3.7
Sweetgum	6.1	3.2	2.0	negl.	17.9	0.1	3.6	5.3
Yellowpoplar	2.5	4.7	6.2	3.2	8.5	34.5	9.5	7.8
Northern red oak	0.5	0.9	0.7	2.6	1.9	10.6	6.6	3.5
Other red oaks	3.6	6.5	7.3	7.7	4.2	2.9	16.8	9.5
White oak	3.5	4.8	6.3	8.0	3.4	4.3	19.8	10.3
Chestnut oak	negl.	1.5	0.8	4.7	negl.	4.1	13.2	5.6
Other white oaks	0.6	1.2	1.3	0.4	0.5	negl.	1.2	0.9
Birch	- -	negl.	negl.	1.4	negl.	2.8	0.2	0.2
Beech	0.4	0.1	0.4	- -	0.8	0.3	2.3	1.1
Hickory	0.7	1.2	1.6	1.8	1.0	4.9	7.7	3.8
Cherry-walnut	- -	negl.	negl.	0.1	0.1	1.3	0.4	0.2
Sugar maple	- -	negl.	negl.	1.7	negl.	4.2	0.4	0.3
Ash	0.1	0.2	0.2	0.3	6.0	2.3	0.6	1.0
Dogwood	0.4	0.4	0.8	0.1	0.8	1.2	0.9	0.7
Black locust	- -	0.1	0.1	0.7	negl.	1.9	1.2	0.6
Other hardwoods	0.5	0.9	0.7	4.9	14.0	15.5	2.5	3.5
Scrub hardwoods	0.3	0.5	0.5	1.1	1.1	1.4	1.1	0.8
All species	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 4. - Net board-foot volume (Int. ¼-inch rule) in Virginia, by species and forest conditions, 1940

Species	Forest condition		Total	
	Saw timber	Cordwood[1]		
	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:				
Loblolly pine[2]	6,913,500	145,900	7,059,400	29.0
Shortleaf pine	2,492,800	220,700	2,713,500	11.2
Virginia pine	1,404,500	137,000	1,541,500	6.3
White pine	383,900	30,000	413,900	1.7
Hemlock[3]	240,100	11,600	251,700	1.0
Redcedar	31,500	9,700	41,200	.2
White-cedar	64,000	900	64.900	.3
Cypress	201,100	800	201,900	.8
Total	11,731,400	556,600	12,288,000	50.5
Hardwoods:				
Red maple	373,000	19,800	392,800	1.6
Blackgum	823,400	24,200	847,600	3.5
Sweetgum	989,500	31,700	1,021,200	4.2
Yellowpoplar	1,810,000	69,900	1,879,900	7.7
Northern red oak	1,030,400	33,700	1,064,100	4.4
Other red oaks	1,581,800	93,000	1,674,800	6.9
White oak	1,827,600	75,000	1,902,600	7.8
Chestnut oak	1,109,500	64,100	1,173,600	4.8
Other white oaks	101,200	6,800	108,000	.5
Birch	34,500	2,800	37,300	.2
Beech	276,900	8,800	285,700	1.2
Hickory	598,800	37,100	635,900	2.6
Cherry-walnut	42,400	7,800	50,200	.2
Sugar maple	92,400	4,100	96,500	.4
Ash	171,300	4,900	176,200	.7
Other hardwoods[4]	670,600	29,200	699,800	2.8
Total	11,533,300	512,900	12,046,200	49.5
All live species	23,264,700	1,069,500	24,334,200	100.0
Dead chestnut	444,400	314,000	758,400	- -
All species	23,709,100	1,383,500	25,092,600	- -

1/Includes the saw-timber volume, 5,100 M board feet, in the reproduction condition.

2/Includes pond pine, 3,500 M board feet.

3/Includes red spruce, 2,700 M board feet.

4/Includes basswood, 68,100 M board feet.

Table 5. - Net board-foot volume (Int. ¼-inch rule) in Virginia by species and diameter classes, 1940

Species	Diameter-class (inches)			Total	
	10-12	14-18	20+		
	M bd. ft.	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:					
Loblolly pine	2,858,400	3,221,600	979,400	7,059,400	29.0
Shortleaf pine	1,643,200	899,600	170,700	2,713,500	11.2
Virginia pine	1,094,400	429,300	17,800	1,541,500	6.3
White pine	117,900	161,700	134,300	413,900	1.7
Hemlock	35,200	81,100	135,400	251,700	1.0
Redcedar	32,200	8,200	800	41,200	.2
White-cedar	7,100	29,500	28,300	64,900	.3
Cypress	55,900	88,300	57,700	201,900	.8
Total	5,844,300	4,919,300	1,524,400	12,288,000	50.5
Hardwoods:					
Red maple	- -	255,600	137,200	392,800	1.6
Blackgum	- -	504,600	343,000	847,600	3.5
Sweetgum	- -	728,100	293,100	1,021,200	4.2
Yellowpoplar	- -	1,151,400	728,500	1,879,900	7.7
Northern red oak	- -	418,600	645,500	1,064,100	4.4
Other red oaks	- -	1,007,400	667,400	1,674,800	6.9
White oak	- -	968,700	933,900	1,902,600	7.8
Chestnut oak	- -	575,900	597,700	1,173,600	4.8
Other white oaks	- -	74,000	34,000	108,000	.5
Birch	- -	22,800	14,500	37,300	.2
Beech	- -	162,100	123,600	285,700	1.2
Hickory	- -	424,700	211,200	635,900	2.6
Cherry-walnut	- -	31,200	19,000	50,200	.2
Sugar maple	- -	39,200	57,300	96,500	.4
Ash	- -	125,800	50,400	176,200	.7
Other hardwoods	- -	419,200	280,600	699,800	2.8
Total	- -	6,909,300	5,136,900	12,046,200	49.5
All live species	5,844,300	11,828,600	6,661,300	24,334,200	100.0
Dead chestnut	- -	376,800	381,600	758,400	- -
All species	5,844,300	12,205,400	7,042,900	25,092,600	- -

Table 6. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) per acre in Virginia by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.
Saw timber:								
Loblolly and shortleaf pines	4,830	1,890	460	110	420	10	160	1,310
Virginia pine	60	150	1,430	50	20	10	40	200
Other softwoods	10	30	30	2,610	430	110	40	130
Oaks	190	220	380	610	420	900	1,420	790
Gums and yellowpoplar	310	190	240	110	1,980	1,120	420	510
Other hardwoods	70	40	70	290	1,050	970	360	310
All live species	5,470	2,520	2,610	3,780	4,320	3,120	2,440	3,250
Dead chestnut	- -	10	negl.	120	- -	210	120	60
Cordwood:								
Loblolly and shortleaf pines	130	110	20	40	30	negl.	30	50
Virginia pine	10	10	60	10	10	10	10	20
Other softwoods	negl.	10	10	210	10	10	10	10
Oaks	10	10	10	30	20	40	60	40
Gums and yellowpoplar	10	negl.	10	- -	50	70	20	20
Other hardwoods	10	10	negl.	20	40	70	20	10
All live species	170	150	110	310	160	200	150	150
Dead chestnut	- -	10	negl.	60	- -	120	70	40
All conditions:								
Loblolly and shortleaf pines	3,230	1,020	180	90	280	10	90	680
Virginia pine	40	90	550	40	10	10	20	110
Other softwoods	10	20	10	1,900	270	70	20	70
Oaks	130	120	140	440	270	530	680	410
Gums and yellowpoplar	210	100	90	70	1,270	660	200	260
Other hardwoods	50	20	30	210	680	580	170	160
All live species	3,670	1,370	1,000	2,750	2,780	1,860	1,180	1,690
Dead chestnut	- -	10	negl.	100	- -	170	90	50

Table 7. - Distribution of saw-timber area and volume (Int. $\frac{1}{4}$-inch rule) in Virginia by volume-per-acre classes and type groups, 1940

Volume-per-acre class (board feet)	Saw-timber area		Saw-timber volume	
	Acres	Percent	M bd. ft.	Percent
Softwood types:				
Less than 2,000	1,305,400	40.2	1,566,000	12.5
2,000-3,999	887,600	27.3	2,520,100	20.1
4,000-5,999	436,100	13.4	2,134,400	17.0
6,000-7,999	251,400	7.7	1,747,100	13.9
8,000-9,999	145,000	4.5	1,284,900	10.2
10,000 and over	225,600	6.9	3,299,500	26.3
Total	3,251,100	100.0	12,552,000	100.0
Hardwood types:				
Less than 2.000	2,046,100	52.4	2,381,600	22.2
2,000-3,999	1,074,400	27.5	3,057,800	28.6
4,000-5,999	435,300	11.2	2,121,800	19.8
6,000-7,999	173,600	4.4	1,191,600	11.1
8,000-9,999	85,700	2.2	763,800	7.1
10,000 and over	88,600	2.3	1,196,100	11.2
Total	3,903,700	100.0	10,712,700	100.0

Table 8. - Net cordwood volume in Virginia by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	M cords	M cords	M cords	M cords	M cords
Softwoods:					
Loblolly pine	17,317.1	3,657.0	7,322.8	650.0	28,946.9
Shortleaf pine	7,772.9	2,208.8	7,439.1	691.0	18,111.8
Virginia pine	3,970.4	1,307.5	6,069.3	1,388.4	12,735.6
White pine	919.1	207.2	304.9	133.4	1,564.6
Hemlock	570.1	109.4	105.8	87.9	873.2
Redcedar	101.2	- -	262.2	4.4	367.8
White-cedar	151.0	13.7	5.4	- -	170.1
Cypress	481.0	146.7	100.2	84.8	812.7
Total	31,282.8	7,650.3	21,609.7	3,039.9	63,582.7
Hardwoods:					
Red maple	1,076.0	624.6	2,139.6	2,671.9	6,512.1
Blackgum	2,424.2	1,284.8	2,693.0	2,483.7	8,885.7
Sweetgum	2,470.3	1,474.6	5,066.4	1,163.0	10,174.3
Yellowpoplar	4,933.5	2,679.5	6,145.7	1,279.0	15,037.7
Northern red oak	2,658.7	1,575.8	1,825.9	1,216.4	7,276.8
Other red oaks	4,799.4	2,605.1	9,187.2	2,494.8	19,086.5
White oak	5,203.9	2,925.1	9,575.9	2,428.2	20,133.1
Chestnut oak	3,547.1	1,897.4	4,812.0	5,180.8	15,437.3
Other white oaks	337.3	174.4	1,232.9	447.9	2,192.5
Birch	100.6	59.5	218.6	291.1	669.8
Beech	761.7	461.8	614.2	565.3	2,403.0
Hickory	1,962.6	1,069.4	3,687.7	981.2	7,700.9
Cherry-walnut	129.5	66.2	177.0	83.1	455.8
Sugar maple	259.2	158.5	159.5	315.2	892.4
Ash	461.2	247.6	1,065.0	633.0	2,406.8
Dogwood	- -	- -	1,160.0	288.6	1,448.6
Black locust	- -	- -	1,096.0	185.0	1,281.0
Other merchantable hardwoods	1,873.6	1,059.2	2,701.4	2,330.4	7,964.6
Scrub hardwoods	- -	- -	- -	1,355.8	1,355.8
Total	32,998.8	18,363.5	53,558.0	26,394.4	131,314.7
All live species	64,281.6	26,013.8	75,167.7	29,434.3	194,897.4
Dead chestnut	2,552.5	1,083.0	2,891.0	3,086.3	9,612.8
All species	66,834.1	27,096.8	78,058.7	32,520.6	204,510.2

Table 9. - Net cordwood volume in Virginia by species and diameter classes, 1940[1/]

Species	Diameter class (inches)				Total	
	6-8	10-12	14-18	20+		
	M cords	M cords	M cords	M cords	M cords	Percent
Softwoods:						
Loblolly pine	7,322.8	10,193.4	8,558.4	2,222.3	28,296.9	19.3
Shortleaf pine	7,439.1	6,908.3	2,654.1	419.3	17,420.8	11.9
Virginia pine	6,069.3	4,018.5	1,214.4	45.0	11,347.2	7.7
White pine	304.9	392.6	428.5	305.2	1,431.2	1.0
Hemlock	105.8	134.8	224.8	319.9	785.3	.5
Redcedar	262.2	80.5	18.9	1.8	363.4	.2
White-cedar	5.4	22.2	77.0	65.5	170.1	.1
Cypress	100.2	155.3	207.3	118.4	581.2	.4
Total	21,609.7	21,905.6	13,383.4	3,497.4	60,396.1	41.1
Hardwoods:						
Red maple	1,065.8	1,073.8	727.2	348.8	3,215.6	2.2
Blackgum	1,043.2	1,649.8	1,529.2	895.0	5,117.2	3.5
Sweetgum	2,310.0	2,756.4	1,817.7	652.6	7,536.7	5.1
Yellowpoplar	2,795.3	3,350.4	3,167.2	1,766.3	11,079.2	7.5
Northern red oak	754.1	1,071.8	1,165.0	1,493.7	4,484.6	3.1
Other red oaks	4,252.6	4,934.6	3,078.0	1,721.4	13,986.6	9.5
White oak	4,201.5	5,374.4	2,860.5	2,343.4	14,779.8	10.1
Chestnut oak	2,142.7	2,669.3	1,845.7	1,701.4	8,359.1	5.7
Other white oaks	541.0	691.9	244.2	93.1	1,570.2	1.1
Birch	95.5	123.1	65.9	34.7	319.2	.2
Beech	223.0	391.2	460.2	301.5	1,375.9	.9
Hickory	1,570.1	2,117.6	1,389.1	573.5	5,650.3	3.8
Cherry-walnut	72.0	105.0	84.8	44.7	306.5	.2
Sugar maple	80.6	78.9	112.2	147.0	418.7	.3
Ash	545.1	519.9	341.3	119.9	1,526.2	1.0
Dogwood	723.7	329.2	99.0	8.1	1,160.0	.8
Black locust	515.5	366.5	166.7	47.3	1,096.0	.7
Other merch. hdwds.	1,159.6	1,541.8	1,190.5	683.1	4,575.0	3.2
Total	24,091.3	29,145.6	20,344.4	12,975.5	86,556.8	58.9
All live species	45,701.0	51,051.2	33,727.8	16,472.9	146,952.9	100.0
Dead chestnut	1,043.7	1,847.3	2,496.1	3,142.7	8,529.8	- -
All species	46,744.7	52,898.5	36,223.9	19,615.6	155,482.7	- -

1/This table differs from table 8 in that the volume contained in cull trees and upper stems and limbs of saw-timber-size hardwoods is not included.

Table 10. - Cordwood volume per acre in Virginia, by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
	Cords	Cords	Cords	Cords	Cords	Cords	Cords	Cords
Saw timber:								
Loblolly and shortleaf pines	18.34	10.68	2.31	.43	1.23	.04	.59	5.51
Virginia pine	.37	.81	8.24	.26	.07	.05	.20	1.11
Other softwoods	.03	.15	.15	8.15	1.20	.38	.13	.40
Oaks	1.86	2.17	2.70	3.33	2.01	3.23	7.13	4.31
Gums and yellowpoplar	2.33	1.28	1.49	.60	9.79	5.22	2.18	2.76
Other hardwoods	.65	.53	.74	1.76	6.23	5.39	2.45	2.11
All live species	23.58	15.62	15.63	14.53	20.53	14.31	12.68	16.20
Dead chestnut	- -	.15	.07	1.15	.04	1.73	1.32	.69
Cordwood:								
Loblolly and shortleaf pines	3.35	2.57	.37	.26	.20	.02	.26	.87
Virginia pine	.09	.27	2.16	.10	.04	.05	.08	.47
Other softwoods	.02	.10	.03	1.62	.05	.06	.04	.06
Oaks	.54	.74	.52	1.32	.48	.76	2.78	1.70
Gums and yellowpoplar	.47	.29	.27	.20	1.54	2.31	.53	.55
Other hardwoods	.13	.17	.17	.80	1.81	2.09	.78	.63
All live species	4.60	4.14	3.52	4.30	4.12	5.29	4.47	4.28
Dead chestnut	- -	.10	.12	.73	- -	.97	.83	.50
All conditions:								
Loblolly and shortleaf pines	13.23	6.73	1.06	.38	.85	.03	.41	3.17
Virginia pine	.28	.55	4.34	.21	.06	.05	.13	.79
Other softwoods	.03	.13	.08	6.21	.78	.25	.08	.23
Oaks	1.41	1.48	1.30	2.73	1.44	2.16	4.75	3.00
Gums and yellowpoplar	1.69	.79	.70	.48	6.74	3.96	1.27	1.65
Other hardwoods	.47	.35	.37	1.48	4.60	3.96	1.54	1.36
All live species	17.11	10.03	7.85	11.49	14.47	10.41	8.18	10.20
Dead chestnut	- -	.12	.10	1.02	.03	1.40	1.06	.59

Table 11. - Net cubic-foot volume of all sound material in Virginia by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:					
Loblolly pine	1,213.4	254.9	475.6	44.6	1,988.5
Shortleaf pine	531.9	152.5	476.8	46.7	1,207.9
Virginia pine	305.0	89.5	447.4	103.0	944.9
White pine	71.6	15.3	23.2	10.2	120.3
Hemlock	45.1	8.6	8.0	6.9	68.6
Redcedar	7.9	- -	20.0	.2	28.1
White-cedar	12.0	.9	.4	- -	13.3
Cypress	37.1	9.0	7.1	6.7	59.9
Total	2,224.0	530.7	1,458.5	218.3	4,431.5
Hardwoods:					
Red maple	73.1	37.7	141.2	178.0	430.0
Blackgum	159.8	74.5	169.7	163.0	567.0
Sweetgum	167.8	87.6	311.8	73.6	640.8
Yellowpoplar	315.8	149.3	381.8	82.5	929.4
Northern red oak	178.7	92.1	110.2	79.0	460.0
Other red oaks	313.0	150.7	563.2	157.4	1,184.3
White oak	342.7	167.4	600.0	156.3	1,266.4
Chestnut oak	221.7	103.6	277.6	319.5	922.4
Other white oaks	21.3	9.6	71.2	26.8	128.9
Birch	7.0	3.6	14.2	19.6	44.4
Beech	52.8	28.3	40.8	37.7	159.6
Hickory	126.4	58.7	221.1	60.7	466.9
Cherry-walnut	8.7	3.8	10.8	5.3	28.6
Sugar maple	17.7	9.4	10.6	21.3	59.0
Ash	29.8	13.9	65.8	40.0	149.5
Dogwood	- -	- -	74.7	18.3	93.0
Black locust	- -	- -	61.0	10.1	71.1
Other merchantable hardwoods	129.0	64.5	180.9	153.1	527.5
Scrub hardwoods	- -	- -	- -	82.9	82.9
Total	2,165.3	1,054.7	3,306.6	1,685.1	8,211.7
All species	4,389.3	1,585.4	4,765.1	1,903.4	12,643.2

Table 12. - Volume of wood processed in Virginia by the primary forest-products industries, 1940

Product	Number of plants	Production or consumption					
		Loblolly, shortleaf, and Virginia pines	Other softwoods	Oaks	Gums yellow-poplar	Other hardwoods	Total
		M bd. ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd. ft.
Lumber[1]	2,762	679,000	44,800	187,000	117,700	44,000	1,072,500
Veneer	15	1,000	600	1,500	31,800	2,200	37,100
		Cords	Cords	Cords	Cords	Cords	Cords
Cooperage	69	98,200	- -	5,300	3,600	100	107,200
Pulpwood	9	691,200	- -	11,200	62,500	69,400	834,300
Excelsior	20	42,700	- -	- -	- -	- -	42,700
Tanning ext.[2]	9	- -	- -	8,400	- -	97,900	106,300
Mine timbers	- -	9,100	1,200	35,200	14,400	41,800	101,700
Fuel wood	- -	1,364,300	41,100	1,586,900	367,000	537,800	3,897,100
Fence posts	- -	1,300	26,200	17,800	300	67,700	113,300
Misc.[3]	34	200	17,000	2,200	500	14,400	34,300
		M pcs.	M pcs.	M pcs.	M pcs.	M pcs.	M pcs.
Poles, piles	- -	118	- -	1	6	3	128
Hewn ties	- -	7	5	519	2	- -	533

1/Includes lumber tally equivalent of all material produced in sawmills.

2/Includes chestnut wood and oak bark used for manufacture of tanning extract.

3/Includes 13 handle plants, 5 wood turning plants, 5 insulator pin plants, 3 shingle mills, 1 dimension stock plant, 2 box plants, 1 picker stick plant, 1 wooden utensil plant, 1 mine wedge plant, 1 shuttle block plant, and 1 cedar chest plant.

Table 13. - Volume of wood cut from the sound-tree growing stock (commodity drain) in Virginia, 1940

Product and source of material	Virginia pine	Loblolly and shortleaf pines	Other soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	Total
	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.
Sawlogs:							
Lumber	82,800	503,600	39,400	174,900	102,600	27,100	930,400
Veneer	- -	700	200	900	23,900	2,500	28,200
Cooperage	300	25,500	- -	1,700	500	100	28,100
Pulpwood	29,100	92,200	- -	2,700	5,700	1,900	131,600
Excelsior	300	6,900	- -	- -	- -	- -	7,200
Mine timbers	100	1,300	200	2,300	500	2,800	7,200
Fuel wood	19,600	50,700	- -	21,800	4,000	3,500	99,600
Fence posts	100	100	3,800	2,300	100	1,000	7,400
Poles, piles	- -	14,800	- -	300	500	300	15,900
Hewn ties	- -	200	- -	24,400	- -	- -	24,600
Misc.	- -	- -	1,600	600	300	3,200	5,700
Total	132,300	696,000	45,200	231,900	138,100	42,400	1,285,900
	Cords	Cords	Cords	Cords	Cords	Cords	Cords
All mt'l:[1]							
Lumber	271,800	1,460,500	98,600	524,600	291,700	78,500	2,725,700
Veneer	- -	1,800	400	2,400	61,600	6,700	72,900
Cooperage	1,300	96,000	- -	4,600	3,600	100	105,600
Pulpwood	159,900	441,300	- -	17,500	55,500	12,300	686,500
Excelsior	2,300	38,900	- -	- -	- -	- -	41,200
Mine timbers	600	8,400	1,200	35,200	14,500	41,800	101,700
Fuel wood	169,500	277,200	- -	467,500	104,300	111,300	1,129,800
Fence posts	500	800	25,100	16,100	200	58,500	101,200
Poles, piles	300	44,000	- -	800	1,400	900	47,400
Hewn ties	- -	900	100	93,700	100	- -	94,800
Misc.	- -	100	8,500	2,200	400	13,000	24,200
Total	606,200	2,369,900	133,900	1,164,600	533,300	323,100	5,131,000

1/Includes the sawlog portion of saw-timber trees, the usable volume in the upper stems of softwood saw timber and in small trees from 5.0 inches d.b.h. to saw-timber size.

Table 14. - The effect of growth, mortality, and commodity drain upon the forest growing stock in Virginia, 1940

IN BOARD FEET (INT. ¼-INCH RULE)

Species and diameter group	Growing stock Jan. 1, 1940	Gross growth	Mortality	Net growth	Commodity drain	Net change	Growing stock Jan. 1, 1941
	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.
Softwoods:							
10-12 inches	5,810.7	366.8	21.7	345.1	329.1	16.0	5,826.7
14-18 inches	4,925.9	405.8	21.6	384.2	360.6	23.6	4,949.5
20 and over	1,529.5	144.5	10.1	134.4	183.8	-49.4	1,480.1
Total	12,266.1	917.1	53.4	863.7	873.5	-9.8	12,256.3
Hardwoods:							
14-18 inches	6,825.7	489.5	15.3	474.2	220.1	254.1	7,079.8
20 and over	5,104.3	289.8	16.4	273.4	192.3	81.1	5,185.4
Total	11,930.0	779.3	31.7	747.6	412.4	335.2	12,265.2
All species	24,196.1	1,696.4	85.1	1,611.3	1,285.9	325.4	24,521.5

IN CUBIC FEET

	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:							
6-8 inches	1,445.2	75.6	10.7	64.9	32.5	32.4	1,477.6
10-12 inches	1,507.8	92.7	5.8	86.9	84.9	2.0	1,509.8
14-18 inches	966.2	86.5	4.3	82.2	71.6	10.6	976.8
20 and over	264.8	25.5	1.7	23.8	31.3	-7.5	257.3
Total	4,184.0	280.3	22.5	257.8	220.3	37.5	4,221.5
Hardwoods:							
6-12 inches	3,249.8	144.9	8.6	136.3	55.6	80.7	3,330.5
14-18 inches	1,302.2	90.3	3.0	87.3	41.3	46.0	1,348.2
20 and over	862.7	48.8	3.0	45.8	32.9	12.9	875.6
Total	5,414.7	284.0	14.6	269.4	129.8	139.6	5,554.3
All species	9,598.7	564.3	37.1	527.2	350.1	177.1	9,775.8

Table 15. - Net changes in saw-timber growing stock in Virginia and its provinces by species groups and diameter classes, 1940

Province and diameter group	Species-groups								
	Shortleaf and loblolly pines	Virginia pine	Other soft-woods	All soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	All hard-woods	All species
	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.
Coastal Plain:									
10-12 inches	-4.4	-5.3	-2.7	-12.4	- -	- -	- -	- -	-12.4
14-18 inches	49.2	1.1	-0.1	50.2	25.3	57.2	19.8	102.3	152.5
20 and over	-23.2	0.2	-3.2	-26.2	5.6	6.6	16.6	28.8	2.6
All diameters	21.6	-4.0	-6.0	11.6	30.9	63.8	36.4	131.1	142.7
Piedmont:									
10-12 inches	-27.1	39.3	-0.1	12.1	- -	- -	- -	- -	12.1
14-18 inches	-28.9	5.5	0.4	-23.0	58.2	43.0	28.5	129.7	106.7
20 and over	-17.7	-0.3	0.1	-17.9	22.3	19.0	13.8	55.1	37.2
All diameters	-73.7	44.5	0.4	-28.8	80.5	62.0	42.3	184.8	156.0
Mountains:									
10-12 inches	3.3	8.4	4.6	16.3	- -	- -	- -	- -	16.3
14-18 inches	2.9	-0.5	-6.0	-3.6	2.4	7.8	11.9	22.1	18.5
20 and over	- -	- -	-5.3	-5.3	-6.8	2.1	1.9	-2.8	-8.1
All diameters	6.2	7.9	-6.7	7.4	-4.4	9.9	13.8	19.3	26.7
All provinces:									
10-12 inches	-28.2	42.4	1.8	16.0	- -	- -	- -	- -	16.0
14-18 inches	23.2	6.1	-5.7	23.6	85.9	108.0	60.2	254.1	277.7
20 and over	-40.9	-0.1	-8.4	-49.4	21.1	27.7	32.3	81.1	31.7
All diameters	-45.9	48.4	-12.3	-9.8	107.0	135.7	92.5	335.2	325.4

Table 16. - Net changes in growing stock of all material in Virginia and its provinces by species groups and diameter classes, 1940

Province and diameter group	Species-groups								
	Shortleaf and loblolly pines	Virginia pine	Other soft-woods	All soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	All hard-woods	All species
	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Coastal Plain:									
6-8 inches	6.6	2.5	-0.8	8.3	5.5	9.5	4.9	19.9	28.2
10-12 inches	-2.9	-1.8	-0.5	-5.2	3.0	3.9	1.5	8.4	3.2
14-18 inches	13.1	0.3	negl.	13.4	4.9	9.1	3.6	17.6	31.0
20 and over	-2.9	negl.	-0.5	-3.4	1.0	1.1	2.8	4.9	1.5
All diameters	13.9	1.0	-1.8	13.1	14.4	23.6	12.8	50.8	63.9
Piedmont:									
6-8 inches	5.2	14.8	1.0	21.0	6.7	8.4	9.0	24.1	45.1
10-12 inches	-7.9	11.1	negl.	3.2	1.9	4.2	2.9	9.0	12.2
14-18 inches	-4.4	1.9	0.1	-2.4	11.5	6.7	6.0	24.2	21.8
20 and over	-3.2	negl.	0.1	-3.1	3.7	2.8	1.9	8.4	5.3
All diameters	-10.3	27.8	1.2	18.7	23.8	22.1	19.8	65.7	84.4
Mountains:									
6-8 inches	-0.8	2.5	1.4	3.1	6.9	1.2	9.0	17.1	20.2
10-12 inches	0.8	2.0	1.2	4.0	1.7	-0.2	0.7	2.2	6.2
14-18 inches	0.8	negl.	-1.2	-0.4	0.5	0.7	3.0	4.2	3.8
20 and over	negl.	- -	-1.0	-1.0	-1.2	0.3	0.5	-0.4	-1.4
All diameters	0.8	4.5	0.4	5.7	7.9	2.0	13.2	23.1	28.8
All provinces:									
6-8 inches	11.0	19.8	1.6	32.4	19.1	19.1	22.9	61.1	93.5
10-12 inches	-10.0	11.3	0.7	2.0	6.6	7.9	5.1	19.6	21.6
14-18 inches	9.5	2.2	-1.1	10.6	16.9	16.5	12.6	46.0	56.6
20 and over	-6.1	negl.	-1.4	-7.5	3.5	4.2	5.2	12.9	5.4
All diameters	4.4	33.3	-0.2	37.5	46.1	47.7	45.8	139.6	177.1

Table 1. - Land use in the Virginia Coastal Plain, 1940

Land use	Land area	
	Acres	Percent
Forest:		
Commercial	3,919,200	61.6
Public reserved	24,600	.4
Non-commercial	- -	- -
Total	3,943,800	62.0
Non-forest:		
Crop-land	1,684,400	26.5
Abandoned crop-land	82,100	1.3
Pasture	150,500	2.4
Marsh	258,300	4.0
Other	243,800	3.8
Total	2,419,100	38.0
All uses	6,362,900	100.0

Table 2. - Forest area of the Virginia Coastal Plain by forest types and conditions, 1940

Forest type	Forest condition			Total	
	Saw timber	Cord-wood	Repro-duction		
	Acres	Acres	Acres	Acres	Percent
Softwoods:					
Loblolly pine[1/]	1,279,600	548,800	91,000	1,919,400	49.0
Shortleaf pine	94,100	65,200	4,800	164,100	4.2
Virginia pine	172,200	135,200	23,400	330,800	8.4
White pine	- -	- -	- -	- -	- -
Total	1,545,900	749,200	119,200	2,414,300	61.6
Hardwoods:					
Bottomland hardwood[2/]	409,700	160,100	37,800	607,600	15.5
Cove hardwood	- -	- -	- -	- -	- -
Upland hardwood	521,500	367,000	8,800	897,300	22.9
Total	931,200	527,100	46,600	1,504,900	38.4
All types	2,477,100	1,276,300	165,800	3,919,200	100.0

1/Includes pond pine, 12,100 acres.

2/Includes cypress, 24,900 acres; and white-cedar, 11,300 acres.

Table 3. - Species composition of forest types in Virginia Coastal Plain, expressed in percent of net cubic volume, 1940

Species	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
Softwoods:								
Pond pine	0.1	- -	- -	- -	negl.	- -	- -	negl.
Loblolly pine	73.0	17.4	19.9	- -	5.9	- -	7.2	43.0
Shortleaf pine	3.3	52.7	2.8	- -	0.1	- -	1.2	4.0
Virginia pine	1.6	1.2	41.9	- -	0.1	- -	1.5	3.6
White pine	- -	- -	- -	- -	- -	- -	- -	- -
Hemlock	- -	- -	- -	- -	- -	- -	- -	- -
Redcedar	0.1	0.8	0.1	- -	0.1	- -	0.1	0.1
White-cedar	negl.	- -	- -	- -	1.6	- -	negl.	0.3
Cypress	0.1	- -	- -	- -	6.3	- -	negl.	1.2
Hardwoods:								
Red maple	0.9	0.5	0.4	- -	9.0	- -	2.5	2.7
Blackgum	1.8	0.8	1.3	- -	27.3	- -	3.0	6.8
Sweetgum	6.0	5.3	4.1	- -	18.8	- -	12.2	9.4
Yellowpoplar	2.5	2.4	5.1	- -	5.8	- -	13.1	5.3
Northern red oak	0.5	0.6	0.4	- -	1.7	- -	3.2	1.3
Other red oaks	3.6	7.4	9.9	- -	3.6	- -	15.3	6.4
White oak	3.5	5.6	7.5	- -	3.2	- -	18.0	6.5
Chestnut oak	negl.	0.1	- -	- -	- -	- -	0.8	0.2
Other white oaks	0.6	2.4	1.2	- -	0.4	- -	1.6	0.8
Birch	- -	- -	- -	- -	- -	- -	- -	- -
Beech	0.5	0.2	1.4	- -	0.8	- -	8.2	2.0
Hickory	0.7	1.1	2.3	- -	0.9	- -	7.2	2.1
Cherry-walnut	- -	- -	- -	- -	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -	- -	- -	- -	- -
Ash	0.1	0.1	negl.	- -	5.2	- -	0.5	1.1
Dogwood	0.4	0.4	0.9	- -	0.7	- -	1.5	0.7
Black locust	- -	- -	- -	- -	- -	- -	- -	- -
Other hardwoods	0.4	0.6	0.4	- -	7.3	- -	2.0	2.0
Scrub hardwoods	0.3	0.4	0.4	- -	1.2	- -	0.9	0.5
All species	100.0	100.0	100.0	- -	100.0	- -	100.0	100.0

Table 4. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) in the Virginia Coastal Plain by species and forest conditions, 1940

Species	Forest condition		Total	
	Saw timber	Cordwood[1]		
	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:				
Loblolly pine[2]	6,698,200	141,200	6,839,400	58.2
Shortleaf pine	433,400	16,600	450,000	3.8
Virginia pine	336,200	16,300	352,500	3.0
White pine	- -	- -	- -	- -
Hemlock	- -	- -	- -	- -
Redcedar	8,900	1,600	10,500	.1
White-cedar	64,000	900	64,900	.6
Cypress	201,100	800	201,900	1.7
Total	7,741,800	177,400	7,919,200	67.4
Hardwoods:				
Red maple	213,700	8,200	221,900	1.9
Blackgum	639,800	8,400	648,200	5.5
Sweetgum	756,100	21,800	777,900	6.6
Yellowpoplar	519,600	10,100	529,700	4.5
Northern red oak	149,400	2,800	152,200	1.3
Other red oaks	433,300	13,000	446,300	3.8
White oak	347,300	15,700	363,000	3.1
Chestnut oak	15,500	200	15,700	.2
Other white oaks	34,700	700	35,400	.3
Birch	- -	- -	- -	- -
Beech	218,200	5,400	223,600	1.9
Hickory	138,800	6,400	145,200	1.2
Cherry-walnut	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -
Ash	91,800	- -	91,800	.8
Other hardwoods	175,000	2,900	177,900	1.5
Total	3,733,200	95,600	3,828,800	32.6
All live species	11,475,000	273,000	11,748,000	100.0
Dead chestnut	- -	- -	- -	- -
All species	11,475,000	273,000	11,748,000	- -

1/Includes the saw-timber volume, 2,000 M board feet, in the reproduction condition.

2/Includes pond pine, 3,500 M board feet.

Table 5. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) in the Virginia Coastal Plain by species and diameter classes, 1940

Species	Diameter-class (inches)			Total	
	10-12	14-18	20+		
	M bd. ft.	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:					
Loblolly pine	2,749,900	3,126,900	962,600	6,839,400	58.2
Shortleaf pine	277,700	150,400	21,900	450,000	3.8
Virginia pine	203,600	137,800	11,100	352,500	3.0
White pine	- -	- -	- -	- -	- -
Hemlock	- -	- -	- -	- -	- -
Redcedar	6,400	3,300	800	10,500	.1
White-cedar	7,100	29,500	28,300	64,900	.6
Cypress	55,900	88,300	57,700	201,900	1.7
Total	3,300,600	3,536,200	1,082,400	7,919,200	67.4
Hardwoods:					
Red maple	- -	145,300	76,600	221,900	1.9
Blackgum	- -	366,000	282,200	648,200	5.5
Sweetgum	- -	544,600	233,300	777,900	6.6
Yellowpoplar	- -	317,600	212,100	529,700	4.5
Northern red oak	- -	48,600	103,600	152,200	1.3
Other red oaks	- -	244,300	202,000	446,300	3.8
White oak	- -	222,100	140,900	363,000	3.1
Chestnut oak	- -	6,800	8,900	15,700	.2
Other white oaks	- -	23,100	12,300	35,400	.3
Birch	- -	- -	- -	- -	- -
Beech	- -	116,700	106,900	223,600	1.9
Hickory	- -	92,300	52,900	145,200	1.2
Cherry-walnut	- -	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -	- -
Ash	- -	63,100	28,700	91,800	.8
Other hardwoods	- -	109,800	68,100	177,900	1.5
Total	- -	2,300,300	1,528,500	3,828,800	32.6
All live species	3,300,600	5,836,500	2,610,900	11,748,000	100.0
Dead chestnut	- -	- -	- -	- -	- -
All species	3,300,600	5,836,500	2,610,900	11,748,000	- -

Table 6. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) per acre in the Virginia Coastal Plain by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.
Saw timber:								
Loblolly and shortleaf pines	4,880	2,850	940	- -	550	- -	440	2,880
Virginia pine	60	20	1,250	- -	10	- -	70	130
Other softwoods	10	10	negl.	- -	630	- -	negl.	110
Oaks	190	260	400	- -	420	- -	910	400
Gums and yellowpoplar	310	200	220	- -	2,450	- -	880	770
Other hardwoods	80	40	90	- -	940	- -	640	340
All live species	5,530	3,380	2,900	- -	5,000	- -	2,940	4,630
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -
Cordwood:								
Loblolly and shortleaf pines	140	190	60	- -	50	- -	100	110
Virginia pine	negl.	10	50	- -	negl.	- -	10	10
Other softwoods	negl.	negl.	- -	- -	10	- -	negl.	negl.
Oaks	20	10	negl.	- -	10	- -	50	20
Gums and yellowpoplar	20	20	20	- -	60	- -	40	30
Other hardwoods	negl.	- -	negl.	- -	40	- -	40	20
All live species	180	230	130	- -	170	- -	240	190
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -
All conditions:								
Loblolly and shortleaf pines	3,300	1,710	510	- -	390	- -	290	1,860
Virginia pine	40	20	680	- -	10	- -	50	90
Other softwoods	10	10	negl.	- -	430	- -	negl.	70
Oaks	130	160	210	- -	290	- -	550	260
Gums and yellowpoplar	210	120	120	- -	1,670	- -	530	500
Other hardwoods	50	20	50	- -	640	- -	390	220
All live species	3,740	2,040	1,570	- -	3,430	- -	1,810	3,000
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -

Table 7. - Distribution of saw-timber area and volume (Int. $\frac{1}{4}$-inch rule) in the Virginia Coastal Plain by volume-per-acre classes and type groups, 1940

Volume-per-acre class (board feet)	Saw-timber area		Saw-timber volume	
	Acres	Percent	M bd. ft.	Percent
Softwood types:				
Less than 2,000	441,000	28.0	560,900	6.9
2,000-3,999	399,200	25.4	1,154,200	14.2
4,000-5,999	242,200	15.4	1,195,200	14.7
6,000-7,999	175,400	11.2	1,225,400	15.1
8,000-9,999	115,100	7.3	1,016,400	12.5
10,000 and over	200,400	12.7	2,969,600	36.6
Total	1,573,300	100.0	8,121,700	100.0
Hardwood types:				
Less than 2,000	342,900	37.9	428,800	12.8
2,000-3,999	278,400	30.8	811,400	24.2
4,000-5,999	133,600	14.8	654,400	19.5
6,000-7,999	66,800	7.4	459,800	13.7
8,000-9,999	32,200	3.6	289,800	8.6
10,000 and over	49,900	5.5	709,100	21.2
Total	903,800	100.0	3,353,300	100.0

Table 8. - Net cordwood volume in the Virginia Coastal Plain by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	M cords	M cords	M cords	M cords	M cords
Softwoods:					
Loblolly pine	16,758.4	3,524.4	7,001.1	638.7	27,922.6
Shortleaf pine	1,171.8	282.6	1,107.7	46.8	2,608.9
Virginia pine	910.9	321.6	1,107.2	219.0	2,558.7
White pine	- -	- -	- -	- -	- -
Hemlock	- -	- -	- -	- -	- -
Redcedar	24.7	- -	47.4	2.6	74.7
White-cedar	151.0	13.7	5.4	- -	170.1
Cypress	481.0	146.7	100.2	84.8	812.7
Total	19,497.8	4,289.0	9,369.0	991.9	34,147.7
Hardwoods:					
Red maple	601.6	349.6	835.5	1,254.1	3,040.8
Blackgum	1,834.7	1,025.5	1,803.6	1,708.2	6,372.0
Sweetgum	1,879.8	1,122.7	3,527.7	993.9	7,524.1
Yellowpoplar	1,330.1	749.5	1,636.6	290.2	4,006.4
Northern red oak	379.5	230.1	263.3	59.3	932.2
Other red oaks	1,236.4	689.4	2,571.0	553.6	5,050.4
White oak	1,018.7	558.3	3,044.5	573.0	5,194.5
Chestnut oak	42.5	24.2	47.8	24.1	138.6
Other white oaks	99.6	54.5	449.3	146.2	749.6
Birch	- -	- -	- -	- -	- -
Beech	587.5	358.2	401.8	395.8	1,743.3
Hickory	429.2	239.2	772.6	132.1	1,573.1
Cherry-walnut	- -	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -	- -
Ash	232.8	129.8	424.7	289.5	1,076.8
Dogwood	- -	- -	464.5	115.1	579.6
Black locust	- -	- -	- -	- -	- -
Other merchantable hardwoods	453.4	270.4	644.3	454.5	1,822.6
Scrub hardwoods	- -	- -	- -	375.5	375.5
Total	10,125.8	5,801.4	16,887.2	7,365.1	40,179.5
All live species	29,623.6	10,090.4	26,256.2	8,357.0	74,327.2
Dead chestnut	- -	- -	- -	- -	- -
All species	29,623.6	10,090.4	26,256.2	8,357.0	74,327.2

Table 9. - Net cordwood volume in the Virginia Coastal Plain by species and diameter classes, 1940[1/]

Species	Diameter class (inches)				Total	
	6-8	10-12	14-18	20+		
	M cords	M cords	M cords	M cords	M cords	Percent
Softwoods:						
Loblolly pine	7,001.1	9,796.3	8,303.2	2,183.3	27,283.9	45.5
Shortleaf pine	1,107.7	1,006.3	399.5	48.6	2,562.1	4.3
Virginia pine	1,107.2	802.5	401.3	28.7	2,339.7	3.9
White pine	- -	- -	- -	- -	- -	- -
Hemlock	- -	- -	- -	- -	- -	- -
Redcedar	47.4	15.5	7.4	1.8	72.1	negl.
White-cedar	5.4	22.2	77.0	65.5	170.1	.3
Cypress	100.2	155.3	207.3	118.4	581.2	1.0
Total	9,369.0	11,798.1	9,395.7	2,446.3	33,009.1	55.0
Hardwoods:						
Red maple	386.5	449.0	410.3	191.3	1,437.1	2.4
Blackgum	652.9	1,150.7	1,101.2	733.5	3,638.3	6.1
Sweetgum	1,578.6	1,949.1	1,359.0	520.8	5,407.5	9.0
Yellowpoplar	710.2	926.4	841.9	488.2	2,966.7	4.9
Northern red oak	118.5	144.8	137.4	242.1	642.8	1.1
Other red oaks	1,187.8	1,383.2	734.2	502.2	3,807.4	6.3
White oak	1,370.4	1,674.1	669.8	348.9	4,063.2	6.8
Chestnut oak	6.5	41.3	20.4	22.1	90.3	.2
Other white oaks	206.0	243.3	69.1	30.5	548.9	.9
Birch	- -	- -	- -	- -	- -	- -
Beech	136.1	265.7	328.9	258.6	989.3	1.6
Hickory	339.3	433.3	288.2	141.0	1,201.8	2.0
Cherry-walnut	- -	- -	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -	- -	- -
Ash	215.5	209.2	166.1	66.7	657.5	1.1
Dogwood	285.1	140.0	36.7	2.7	464.5	.8
Black locust	- -	- -	- -	- -	- -	- -
Other merch. hdwds.	282.4	361.9	299.3	154.1	1,097.7	1.8
Total	7,475.8	9,372.0	6,462.5	3,702.7	27,013.0	45.0
All live species	16,844.8	21,170.1	15,858.2	6,149.0	60,022.1	100.0
Dead chestnut	- -	- -	- -	- -	- -	- -
All species	16,844.8	21,170.1	15,858.2	6,149.0	60,022.1	- -

1/This table differs from table 8 in that the volume contained in cull trees and upper stems and limbs of saw-timber-size hardwoods is not included.

Table 10. - Cordwood volume per acre in the Virginia Coastal Plain, by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
	Cords	Cords	Cords	Cords	Cords	Cords	Cords	Cords
Saw timber:								
Loblolly and shortleaf pines	18.43	13.53	4.01	- -	1.55	- -	1.43	10.87
Virginia pine	.38	.19	7.08	- -	.03	- -	.30	.76
Other softwoods	.03	.08	.02	- -	1.76	- -	.02	.32
Oaks	1.87	2.86	3.19	- -	1.93	- -	5.95	2.87
Gums and yellowpoplar	2.29	1.54	1.72	- -	11.77	- -	4.79	4.31
Other hardwoods	.65	.55	.89	- -	5.36	- -	3.58	2.06
All live species	23.65	18.75	16.91	- -	22.40	- -	16.07	21.19
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -
Cordwood:								
Loblolly and shortleaf pines	3.42	4.14	.87	- -	.25	- -	.67	2.02
Virginia pine	.10	.12	2.16	- -	.01	- -	.09	.31
Other softwoods	.01	.14	negl.	- -	.06	- -	.01	.02
Oaks	.57	1.31	.68	- -	.49	- -	3.70	1.43
Gums and yellowpoplar	.49	.48	.45	- -	1.66	- -	1.53	.92
Other hardwoods	.13	.11	.21	- -	1.25	- -	1.02	.52
All live species	4.72	6.30	4.37	- -	3.72	- -	7.02	5.22
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	-
All conditions:								
Loblolly and shortleaf pines	13.43	9.53	2.50	- -	1.13	- -	1.11	7.62
Virginia pine	.29	.16	4.72	- -	.02	- -	.21	.60
Other softwoods	.03	.11	.01	- -	1.21	- -	.02	.21
Oaks	1.43	2.20	1.99	- -	1.46	- -	5.01	2.33
Gums and yellowpoplar	1.69	1.08	1.11	- -	8.47	- -	3.42	3.06
Other hardwoods	.47	.36	.57	- -	4.02	- -	2.51	1.49
All live species	17.34	13.44	10.90	- -	16.31	- -	12.28	15.31
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -

Table 11. - Net cubic-foot volume of all sound material in the Virginia Coastal Plain by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:					
Loblolly pine	1,174.5	245.8	454.7	43.8	1,918.8
Shortleaf pine	81.1	19.4	71.9	3.1	175.5
Virginia pine	62.3	22.1	71.8	14.9	171.1
White pine	- -	- -	- -	- -	- -
Hemlock	- -	- -	- -	- -	- -
Redcedar	1.9	- -	3.6	.2	5.7
White-cedar	12.0	.9	.4	- -	13.3
Cypress	37.1	9.0	7.1	6.7	59.9
Total	1,368.9	297.2	609.5	68.7	2,344.3
Hardwoods:					
Red maple	41.0	21.3	55.1	84.2	201.6
Blackgum	121.5	59.5	113.4	111.4	405.8
Sweetgum	127.8	66.6	217.3	63.1	474.8
Yellowpoplar	86.6	42.7	100.2	18.9	248.4
Northern red oak	25.8	13.6	16.3	4.0	59.7
Other red oaks	82.0	40.9	154.1	35.4	312.4
White oak	67.4	33.1	182.7	36.8	320.0
Chestnut oak	2.9	1.4	2.9	1.8	9.0
Other white oaks	6.6	3.3	26.8	9.1	45.8
Birch	- -	- -	- -	- -	- -
Beech	40.5	22.0	26.0	26.2	114.7
Hickory	28.2	14.1	47.8	8.3	98.4
Cherry-walnut	- -	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -	- -
Ash	15.1	7.4	26.0	18.4	66.9
Dogwood	- -	- -	30.1	7.4	37.5
Black locust	- -	- -	- -	- -	- -
Other merchantable hardwoods	31.2	16.4	40.7	29.3	117.6
Scrub hardwoods	- -	- -	- -	24.3	24.3
Total	676.6	342.3	1,039.4	478.6	2,536.9
All species	2,045.5	639.5	1,648.9	547.3	4,881.2

Table 12. - Volume of wood processed in the Virginia Coastal Plain by the primary forest-products industries, 1940

Product	Number of plants	Production or consumption					
		Loblolly, shortleaf, & Virginia pines	Other soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	Total
		M bd. ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd. ft.
Lumber[1/]	567	403,400	14,900	26,100	44,800	3,000	492,200
Veneer	7	1,000	100	- -	21,700	300	23,100
		Cords	Cords	Cords	Cords	Cords	Cords
Cooperage	48	81,700	- -	2,600	2,100	- -	86,400
Pulpwood	4	423,700	- -	- -	- -	- -	423,700
Excelsior	19	41,000	- -	- -	- -	- -	41,000
Fuel wood	- -	648,000	- -	359,100	122,200	49,900	1,179,200
Fence posts	- -	800	6,000	7,200	300	6,400	20,700
Misc.[2/]	10	200	4,500	- -	- -	1,400	6,100
		M pcs.	M pcs.	M pcs.	M pcs.	M pcs.	M pcs.
Poles, piles	- -	96	- -	1	6	3	106
Hewn ties	- -	7	5	261	2	- -	275

1/Includes the lumber tally equivalent of all material produced in sawmills.

2/Includes 3 handle plants, 3 wood turning plants, 2 shingle mills, 1 box plant, and 1 shuttle block plant.

Table 13. - Volume of wood cut from the sound-tree growing stock (commodity drain) in the Virginia Coastal Plain, 1940

Product and source of material	Virginia pine	Loblolly and shortleaf pines	Other soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	Total
	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.
Sawlogs:							
Lumber	18,200	311,900	10,300	24,200	34,200	2,000	400,800
Veneer	- -	700	100	- -	15,400	300	16,500
Cooperage	- -	22,200	- -	300	400	- -	22,900
Pulpwood	13,200	62,200	- -	- -	900	- -	76,300
Excelsior	300	6,600	- -	- -	- -	- -	6,900
Fuel wood	6,100	34,900	- -	9,300	2,200	900	53,400
Fence posts	- -	100	900	900	100	100	2,100
Poles, piles	- -	12,500	- -	300	500	200	13,500
Hewn ties	- -	200	- -	12,100	- -	- -	12,300
Misc.	- -	- -	900	- -	- -	300	1,200
Total	37,800	451,300	12,200	47,100	53,700	3,800	605,900
	Cords	Cords	Cords	Cords	Cords	Cords	Cords
All mt'l:1/							
Lumber	63,800	803,500	24,800	69,600	89,100	5,400	1,056,200
Veneer	- -	1,800	200	- -	39,400	700	42,100
Cooperage	- -	82,800	- -	700	2,000	- -	85,500
Pulpwood	72,500	269,300	- -	- -	7,300	- -	349,100
Excelsior	2,200	36,700	- -	- -	- -	- -	38,900
Fuel wood	38,100	160,700	- -	160,500	38,900	22,500	420,700
Fence posts	200	600	5,700	6,400	200	5,600	18,700
Poles, piles	300	35,300	- -	800	1,400	600	38,400
Hewn ties	- -	900	100	48,200	100	- -	49,300
Misc.	- -	100	5,200	- -	- -	1,100	6,400
Total	177,100	1,391,700	36,000	286,200	178,400	35,900	2,105,300

1/Includes the sawlog portion of saw-timber trees, the usable volume in the upper stems of softwood saw timber and in small trees from 5.0 inches d.b.h. to saw-timber size.

Table 14. - The effect of growth, mortality, and commodity drain upon the forest growing stock in the Virginia Coastal Plain, 1940

IN BOARD FEET (INT. $\frac{1}{4}$-INCH RULE)

Species and diameter group	Growing stock Jan. 1, 1940	Gross growth	Mortality	Net growth	Commodity drain	Net change	Growing stock Jan. 1, 1941
	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.
Softwoods:							
10-12 inches	3,300.6	158.9	11.5	147.4	159.8	-12.4	3,288.2
14-18 inches	3,536.2	262.2	10.2	252.0	201.8	50.2	3,586.4
20 and over	1,082.4	115.9	2.4	113.5	139.7	-26.2	1,056.2
Total	7,919.2	537.0	24.1	512.9	501.3	11.6	7,930.8
Hardwoods:							
14-18 inches	2,300.3	160.9	5.5	155.4	53.1	102.3	2,402.6
20 and over	1,528.5	87.6	7.3	80.3	51.5	28.8	1,557.3
Total	3,828.8	248.5	12.8	235.7	104.6	131.1	3,959.9
All species	11,748.0	785.5	36.9	748.6	605.9	142.7	11,890.7

IN CUBIC FEET

	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:							
6-8 inches	609.5	25.9	5.1	20.8	12.5	8.3	617.8
10-12 inches	803.8	36.5	2.8	33.7	38.9	-5.2	798.6
14-18 inches	671.0	53.4	1.9	51.5	38.1	13.4	684.4
20 and over	182.4	20.1	0.4	19.7	23.1	-3.4	179.0
Total	2,266.7	135.9	10.2	125.7	112.6	13.1	2,279.8
Hardwoods:							
6-12 inches	1,036.6	44.7	2.6	42.1	13.8	28.3	1,064.9
14-18 inches	425.6	28.5	1.1	27.4	9.8	17.6	443.2
20 and over	253.8	14.6	1.2	13.4	8.5	4.9	258.7
Total	1,716.0	87.8	4.9	82.9	32.1	50.8	1,766.8
All species	3,982.7	223.7	15.1	208.6	144.7	63.9	4,046.6

Table 1. - Land use in the Virginia Piedmont, 1940

Land use	Land area	
	Acres	Percent
Forest:		
Commercial	5,827,900	57.9
Public reserved	104,300	1.0
Non-commercial	- -	- -
Total	5,932,200	58.9
Non-forest:		
Crop-land	2,621,300	26.0
Abandoned crop-land	220,400	2.2
Pasture	1,064,700	10.6
Marsh	14,200	0.2
Other	213,700	2.1
Total	4,134,300	41.1
All uses	10,066,500	100.0

Table 2. - Forest area of the Virginia Piedmont by forest types and conditions, 1940

Forest type	Forest condition			Total	
	Saw timber	Cord-wood	Repro-duction		
	Acres	Acres	Acres	Acres	Percent
Softwoods:					
Loblolly pine	49,500	31,600	15,300	96,400	1.6
Shortleaf pine[1/]	681,600	480,700	70,800	1,233,100	21.2
Virginia pine	474,500	731,200	185,800	1,391,500	23.9
White pine	27,200	8,800	- -	36,000	0.6
Total	1,232,800	1,252,300	271,900	2,757,000	47.3
Hardwoods:					
Bottomland hardwood	192,500	129,600	12,000	334,100	5.7
Cove hardwood	95,700	54,000	- -	149,700	2.6
Upland hardwood	1,189,700	1,272,100	125,300	2,587,100	44.4
Total	1,477,900	1,455,700	137,300	3,070,900	52.7
All types	2,710,700	2,708,000	409,200	5,827,900	100.0

1/Includes redcedar, 16,500 acres.

Table 3. - Species composition of forest types in the Virginia Piedmont, expressed in percent of net cubic volume, 1940

Species	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
Softwoods:								
Pond pine	- -	- -	- -	- -	- -	- -	- -	- -
Loblolly pine	64.4	0.8	0.2	- -	0.6	- -	0.2	1.6
Shortleaf pine	8.5	63.5	9.7	6.9	2.3	0.4	3.7	19.0
Virginia pine	0.8	7.3	60.9	7.0	1.0	1.0	2.2	14.4
White pine	- -	0.1	0.4	43.0	0.1	0.3	0.4	0.7
Hemlock	- -	- -	negl.	1.6	- -	1.7	- -	- -
Redcedar	0.1	0.7	0.4	negl.	0.2	0.1	0.2	0.3
White-cedar	- -	- -	- -	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -	- -	- -	- -
Hardwoods:								
Red maple	1.0	0.9	0.9	2.0	7.4	2.4	2.5	2.1
Blackgum	1.0	0.6	0.8	3.0	1.2	1.7	2.6	1.6
Sweetgum	9.4	3.5	1.6	0.2	16.4	0.3	2.7	3.7
Yellowpoplar	4.5	5.7	7.2	4.2	15.1	53.3	11.6	11.2
Northern red oak	0.1	0.9	0.7	0.1	2.1	7.8	6.5	3.7
Other red oaks	3.2	6.1	6.1	12.1	5.7	3.7	16.3	10.3
White oak	3.3	4.7	5.3	9.3	3.8	4.5	24.3	13.2
Chestnut oak	- -	0.6	0.5	3.3	0.1	4.5	11.1	5.2
Other white oaks	0.8	1.2	1.4	2.5	0.7	0.1	1.9	1.4
Birch	- -	- -	- -	- -	- -	- -	- -	- -
Beech	0.1	0.1	0.1	- -	0.9	0.7	1.5	0.8
Hickory	0.5	1.3	1.3	0.5	1.3	4.2	7.4	4.0
Cherry-walnut	- -	- -	- -	- -	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -	- -	0.1	negl.	negl.
Ash	0.2	0.2	0.2	- -	8.1	2.3	0.6	1.1
Dogwood	0.1	0.5	0.8	0.5	1.0	2.7	1.2	1.0
Black locust	- -	- -	- -	- -	- -	- -	- -	- -
Other hardwoods	1.8	0.9	0.9	1.2	31.2	6.9	2.1	3.9
Scrub hardwoods	0.2	0.4	0.6	2.6	0.8	1.3	1.0	0.8
All species	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 4. - Net board-foot volume (Int. ¼-inch rule) in the Virginia Piedmont, by species and forest conditions, 1940

Species	Forest condition		Total	
	Saw timber	Cordwood[1]		
	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:				
Loblolly pine	215,300	4,700	220,000	2.9
Shortleaf pine	1,645,800	108,100	1,753,900	23.0
Virginia pine	966,700	91,700	1,058,400	13.9
White pine	82,100	3,500	85,600	1.1
Hemlock	11,600	100	11,700	0.2
Redcedar	14,300	5,000	19,300	0.3
White-cedar	- -	- -	- -	- -
Cypress	- -	- -	- -	- -
Total	2,935,800	213,100	3,148,900	41.4
Hardwoods:				
Red maple	101,000	7,400	108,400	1.4
Blackgum	74,400	4,400	78,800	1.0
Sweetgum	233,400	9,900	243,300	3.2
Yellowpoplar	963,900	38,300	1,002,200	13.2
Northern red oak	430,700	7,000	437,700	5.8
Other red oaks	649,600	36,900	686,500	9.0
White oak	805,800	37,500	843,300	11.1
Chestnut oak	333,800	19,400	353,200	4.6
Other white oaks	60,200	5,000	65,200	0.9
Birch	- -	- -	- -	- -
Beech	58,700	3,400	62,100	0.8
Hickory	239,100	15,500	254,600	3.3
Cherry-walnut	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -
Ash	51,700	3,000	54,700	0.7
Other hardwoods	259,200	12,300	271,500	3.6
Total	4,261,500	200,000	4,461,500	58.6
All live species	7,197,300	413,100	7,610,400	100.0
Dead chestnut	- -	- -	- -	- -
All species	7,197,300	413,100	7,610,400	- -

1/Includes the saw-timber volume, 1,700 M board feet in the reproduction condition.

Table 5. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) in the Virginia Piedmont by species and diameter classes, 1940

Species	Diameter-class (inches)			Total	
	10-12	14-18	20+		
	M bd. ft.	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:					
Loblolly pine	108,500	94,700	16,800	220,000	2.9
Shortleaf pine	1,108,800	548,800	96,300	1,753,900	23.0
Virginia pine	786,500	265,200	6,700	1,058,400	13.9
White pine	25,800	30,200	29,600	85,600	1.1
Hemlock	3,800	4,900	3,000	11,700	0.2
Redcedar	17,900	1,400	- -	19,300	0.3
White-cedar	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -
Total	2,051,300	945,200	152,400	3,148,900	41.4
Hardwoods:					
Red maple	- -	76,400	32,000	108,400	1.4
Blackgum	- -	61,500	17,300	78,800	1.0
Sweetgum	- -	183,500	59,800	243,300	3.2
Yellowpoplar	- -	638,200	364,000	1,002,200	13.2
Northern red oak	- -	162,300	275,400	437,700	5.8
Other red oaks	- -	398,700	287,800	686,500	9.0
White oak	- -	454,200	389,100	843,300	11.1
Chestnut oak	- -	182,400	170,800	353,200	4.6
Other white oaks	- -	45,800	19,400	65,200	0.9
Birch	- -	- -	- -	- -	- -
Beech	- -	45,400	16,700	62,100	0.8
Hickory	- -	182,700	71,900	254,600	3.3
Cherry-walnut	- -	- -	- -	- -	- -
Sugar maple	- -	- -	- -	- -	- -
Ash	- -	43,500	11,200	54,700	0.7
Other hardwoods	- -	163,500	108,000	271,500	3.6
Total	- -	2,638,100	1,823,400	4,461,500	58.6
All live species	2,051,300	3,583,300	1,975,800	7,610,400	100.0
Dead chestnut	- -	- -	- -	- -	- -
All species	2,051,300	3,583,300	1,975,800	7,610,400	- -

Table 6. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) per acre in the Virginia Piedmont by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.
Saw timber:								
Loblolly and shortleaf pines	3,490	1,990	330	240	140	20	120	690
Virginia pine	negl.	210	1,540	230	30	40	60	360
Other softwoods	- -	10	30	1,850	10	120	20	40
Oaks	200	210	340	530	420	1,000	1,490	840
Gums and yellowpoplar	350	240	270	120	1,010	2,200	460	470
Other hardwoods	10	60	60	30	1,310	450	290	260
All live species	4,050	2,720	2,570	3,000	2,920	3,830	2,440	2,660
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -
Cordwood:								
Loblolly and shortleaf pines	70	100	20	100	20	negl.	30	40
Virginia pine	- -	20	70	- -	10	20	10	30
Other softwoods	negl.	negl.	negl.	140	negl.	negl.	negl.	negl.
Oaks	negl.	10	10	20	20	60	60	30
Gums and yellowpoplar	10	negl.	10	- -	50	120	20	20
Other hardwoods	- -	10	negl.	- -	50	60	20	10
All live species	80	140	110	260	150	260	140	130
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -
All conditions:								
Loblolly and shortleaf pines	1,820	1,140	130	200	90	10	70	340
Virginia pine	negl.	130	570	170	20	30	40	180
Other softwoods	negl.	10	10	1,430	10	80	10	20
Oaks	110	120	120	410	250	660	720	410
Gums and yellowpoplar	190	140	100	90	600	1,450	220	230
Other hardwoods	negl.	30	20	30	780	310	140	130
All live species	2,120	1,570	950	2,330	1,750	2,540	1,200	1,310
Dead chestnut	- -	- -	- -	- -	- -	- -	- -	- -

Table 7. - Distribution of saw-timber area and volume (Int. $\frac{1}{4}$-inch rule) in the Virginia Piedmont by volume-per-acre classes and type groups, 1940

Volume-per-acre class (board feet)	Saw-timber area		Saw-timber volume	
	Acres	Percent	M bd. ft.	Percent
Softwood types:				
Less than 2,000	593,100	48.1	709,300	21.1
2,000-3,999	388,100	31.5	1,091,400	32.5
4,000-5,999	158,800	12.9	774,600	23.0
6,000-7,999	54,000	4.4	368,600	11.0
8,000-9,999	22,600	1.8	203,700	6.1
10,000 and over	16,200	1.3	211,500	6.3
Total	1,232,800	100.0	3,359,100	100.0
Hardwood types:				
Less than 2,000	784,800	53.1	928,100	24.2
2,000-3,999	425,900	28.8	1,203,900	31.3
4,000-5,999	167,000	11.3	820,600	21.4
6,000-7,999	50,400	3.4	346,000	9.0
8,000-9,999	22,500	1.5	198,900	5.2
10,000 and over	27,300	1.9	340,700	8.9
Total	1,477,900	100.0	3,838,200	100.0

Table 8. - Net cordwood volume in the Virginia Piedmont by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	M cords	M cords	M cords	M cords	M cords
Softwoods:					
Loblolly pine	558.7	132.6	321.7	11.3	1,024.3
Shortleaf pine	5,253.8	1,507.7	5,424.1	274.7	12,460.3
Virginia pine	2,702.2	872.3	4,342.3	978.8	8,895.6
White pine	185.1	44.1	115.8	28.5	373.5
Hemlock	32.5	9.5	9.6	4.7	56.3
Redcedar	46.5	- -	144.2	0.9	191.6
White-cedar	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -
Total	8,778.8	2,566.2	10,357.7	1,298.9	23,001.6
Hardwoods:					
Red maple	298.5	171.6	899.8	821.5	2,191.4
Blackgum	232.9	125.7	736.2	345.1	1,439.9
Sweetgum	590.5	351.9	1,538.7	169.1	2,650.2
Yellowpoplar	2,707.4	1,470.3	3,485.7	573.7	8,237.1
Northern red oak	1,055.0	663.0	695.6	319.1	2,732.7
Other red oaks	1,987.2	1,078.3	3,933.4	712.0	7,710.9
White oak	2,381.2	1,341.2	5,073.4	757.8	9,553.6
Chestnut oak	1,112.7	573.5	2,093.5	966.7	4,746.4
Other white oaks	215.8	108.1	730.6	254.9	1,309.4
Birch	- -	- -	- -	- -	- -
Beech	174.2	103.6	212.4	169.5	659.7
Hickory	823.6	434.4	1,618.1	245.9	3,122.0
Cherry-walnut	- -	- -	- -	- -	- -
Sugar maple	- -	- -	4.4	8.0	12.4
Ash	151.7	80.5	490.3	227.8	950.3
Dogwood	- -	- -	642.1	145.0	787.1
Black locust	- -	- -	- -	- -	- -
Other merchantable hardwoods	724.0	429.1	1,281.9	621.0	3,056.0
Scrub hardwoods	- -	- -	- -	516.3	516.3
Total	12,454.7	6,931.2	23,436.1	6,853.4	49,675.4
All live species	21,233.5	9,497.4	33,793.8	8,152.3	72,677.0
Dead chestnut	- -	- -	716.6	2,181.9	2,898.5
All species	21,233.5	9,497.4	34,510.4	10,334.2	75,575.5

Table 9. - Net cordwood volume in the Virginia Piedmont by species and diameter classes, 1940[1/]

Species	Diameter class (inches)				Total	
	6-8	10-12	14-18	20+		
	M cords	M cords	M cords	M cords	M cords	Percent
Softwoods:						
Loblolly pine	321.7	397.1	255.2	39.0	1,013.0	1.8
Shortleaf pine	5,424.1	4,881.9	1,645.7	233.9	12,185.6	21.2
Virginia pine	4,342.3	2,822.0	736.2	16.3	7,916.8	13.7
White pine	115.8	82.7	81.5	65.0	345.0	0.6
Hemlock	9.6	16.9	16.5	8.6	51.6	0.1
Redcedar	144.2	43.3	3.2	- -	190.7	0.3
White-cedar	- -	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -	- -
Total	10,357.7	8,243.9	2,738.3	362.8	21,702.7	37.7
Hardwoods:						
Red maple	441.7	458.1	218.5	80.0	1,198.3	2.1
Blackgum	337.8	398.4	186.9	46.0	969.1	1.7
Sweetgum	731.4	807.3	458.7	131.8	2,129.2	3.7
Yellowpoplar	1,624.7	1,861.0	1,791.4	916.0	6,193.1	10.8
Northern red oak	313.9	381.7	443.8	611.2	1,750.6	3.0
Other red oaks	1,817.4	2,116.0	1,233.5	753.7	5,920.6	10.3
White oak	2,184.6	2,888.8	1,386.5	994.7	7,454.6	12.9
Chestnut oak	930.9	1,162.6	622.5	490.2	3,206.2	5.6
Other white oaks	312.4	418.2	159.6	56.2	946.4	1.6
Birch	- -	- -	- -	- -	- -	- -
Beech	86.9	125.5	131.3	42.9	386.6	0.7
Hickory	682.6	935.5	630.9	192.7	2,441.7	4.2
Cherry-walnut	- -	- -	- -	- -	- -	- -
Sugar maple	1.7	2.7	- -	- -	4.4	negl.
Ash	255.0	235.3	123.4	28.3	642.0	1.1
Dogwood	393.6	183.6	59.5	5.4	642.1	1.1
Black locust	- -	- -	- -	- -	- -	- -
Other merch. hdwds.	563.1	718.8	458.7	265.3	2,005.9	3.5
Total	10,677.7	12,693.5	7,905.2	4,614.4	35,890.8	62.3
All live species	21,035.4	20,937.4	10,643.5	4,977.2	57,593.5	100.0
Dead chestnut	248.9	467.7	817.2	1,364.7	2,898.5	- -
All species	21,284.3	21,405.1	11,460.7	6,341.9	60,492.0	- -

1/This table differs from table 8 in that the volume contained in cull trees and upper stems and limbs of saw-timber-size hardwoods is not included.

Table 10. - Cordwood volume per acre in the Virginia Piedmont, by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Lob-lolly pine	Short-leaf pine	Vir-ginia pine	White pine	Bottom-land hard-wood	Cove hard-wood	Up-land hard-wood	
	Cords	Cords	Cords	Cords	Cords	Cords	Cords	Cords
Saw timber:								
Loblolly and shortleaf pines	15.95	12.07	1.91	1.02	.59	.10	.56	3.96
Virginia pine	.13	1.10	8.97	1.06	.15	.14	.30	2.01
Other softwoods	.01	.11	.13	6.99	.04	.51	.08	.17
Oaks	1.59	2.24	2.37	4.24	2.17	3.86	8.17	4.93
Gums and yellowpoplar	3.31	1.63	1.60	1.12	5.85	10.79	2.56	2.68
Other hardwoods	.81	.63	.69	.68	8.17	3.74	2.30	2.02
All live species	21.80	17.78	15.67	15.11	16.97	19.14	13.97	15.77
Dead chestnut	- -	.06	.09	1.31	.13	1.24	1.22	.63
Cordwood:								
Loblolly and shortleaf pines	2.39	2.95	.32	.76	.15	.03	.28	.79
Virginia pine	.04	.38	2.27	.26	.08	.17	.12	.79
Other softwoods	.02	.05	.02	1.68	.02	.03	.03	.04
Oaks	.10	.79	.45	1.58	.49	1.05	3.53	1.90
Gums and yellowpoplar	.20	.44	.28	.66	1.55	4.60	.74	.65
Other hardwoods	.13	.21	.17	.23	2.64	1.83	.78	.59
All live species	2.88	4.82	3.51	5.17	4.93	7.71	5.48	4.76
Dead chestnut	- -	.02	.16	1.14	- -	.78	.70	.38
All conditions:								
Loblolly and shortleaf pines	9.35	7.99	.86	.96	.40	.08	.41	2.26
Virginia pine	.09	.78	4.56	.86	.12	.15	.20	1.36
Other softwoods	.02	.08	.06	5.69	.03	.34	.05	.10
Oaks	.86	1.59	1.10	3.59	1.46	2.85	5.67	3.31
Gums and yellowpoplar	1.79	1.10	.73	1.01	4.03	8.55	1.58	1.59
Other hardwoods	.48	.44	.35	.57	5.83	3.05	1.48	1.26
All live species	12.59	11.98	7.66	12.68	11.87	15.02	9.39	9.88
Dead chestnut	- -	.04	.14	1.27	.07	1.07	.94	.50

Table 11. - Net cubic-foot volume of all sound material in the Virginia Piedmont by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:					
Loblolly pine	38.9	9.1	20.9	0.8	69.7
Shortleaf pine	353.0	103.3	342.1	18.0	816.4
Virginia pine	214.8	59.5	329.4	74.2	677.9
White pine	13.8	3.1	8.7	2.1	27.7
Hemlock	2.5	0.7	0.6	0.3	4.1
Redcedar	3.7	- -	10.7	negl.	14.4
White-cedar	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -
Total	626.7	175.7	712.4	95.4	1,610.2
Hardwoods:					
Red maple	20.2	10.5	59.2	54.6	144.5
Blackgum	15.4	7.2	45.9	21.9	90.4
Sweetgum	40.0	21.0	94.5	10.5	166.0
Yellowpoplar	171.5	80.7	217.5	36.6	506.3
Northern red oak	72.2	39.6	41.3	21.2	174.3
Other red oaks	128.6	60.4	246.1	45.1	480.2
White oak	155.3	76.2	323.1	48.1	602.7
Chestnut oak	69.5	31.1	118.4	58.2	277.2
Other white oaks	13.3	5.6	41.3	14.9	75.1
Birch	- -	- -	- -	- -	- -
Beech	12.3	6.3	14.8	11.5	44.9
Hickory	51.3	23.2	94.0	14.8	183.3
Cherry-walnut	- -	- -	- -	- -	- -
Sugar maple	- -	- -	0.3	0.5	0.8
Ash	9.6	4.3	30.7	14.4	59.0
Dogwood	- -	- -	41.7	9.4	51.1
Black locust	- -	- -	- -	- -	- -
Other merchantable hardwoods	50.6	26.2	88.8	41.8	207.4
Scrub hardwoods	- -	- -	- -	33.2	33.2
Total	809.8	392.3	1,457.6	436.7	3,096.4
All species	1,436.5	568.0	2,170.0	532.1	4,706.6

Table 12. - Volume of wood processed in the Virginia Piedmont by the primary forest-products industries, 1940

Product	Number of plants	Production or consumption					
		Loblolly, shortleaf, & Virginia pines	Other soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	Total
		M bd. ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd. ft.
Lumber[1]	1,196	264,600	3,200	60,100	52,000	2,900	382,800
Veneer	3	- -	- -	300	7,200	900	8,400
		Cords	Cords	Cords	Cords	Cords	Cords
Cooperage	17	16,500	- -	400	800	- -	17,700
Mine timbers	- -	200	- -	400	- -	300	900
Fuel wood	- -	616,100	- -	713,800	159,300	185,600	1,674,800
Fence posts	- -	400	18,400	10,300	- -	28,000	57,100
Misc.[2]	15	18,000	12,500	1,200	400	53,000	85,100
		M pcs.	M pcs.	M pcs.	M pcs.	M pcs.	M pcs.
Poles, piles	- -	22	- -	- -	- -	- -	22
Hewn ties	- -	- -	- -	207	- -	- -	207

1/Includes lumber tally equivalent of all material produced in sawmills.

2/Includes 2 pulp mills, 5 handle plants, 1 excelsior plant, 2 insulator pin plants, 1 dimension stock plant, 1 picker stick plant, 1 plant making wooden utensils (spoons, forks, etc.), 1 plant making cedar chests, and 1 wood turning plant.

Table 13. - Volume of wood cut from the sound-tree growing stock (commodity drain) in the Virginia Piedmont, 1940

Product and source of material	Virginia pine	Loblolly and shortleaf pines	Other soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	Total
	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.
Sawlogs:							
Lumber	61,500	185,400	3,200	58,700	49,300	2,700	360,800
Veneer	- -	- -	- -	200	7,600	1,700	9,500
Cooperage	300	3,300	- -	100	100	- -	3,800
Pulpwood	11,500	24,100	- -	- -	2,700	200	38,500
Excelsior	- -	300	- -	- -	- -	- -	300
Mine timbers	- -	100	- -	- -	- -	- -	100
Fuel wood	12,700	14,000	- -	7,300	1,600	1,600	37,200
Fence posts	100	- -	2,600	1,400	- -	400	4,500
Poles, piles	- -	2,300	- -	- -	- -	100	2,400
Hewn ties	- -	- -	- -	9,900	- -	- -	9,900
Misc.	- -	- -	300	400	100	700	1,500
Total	86,100	229,500	6,100	78,000	61,400	7,400	468,500
	Cords	Cords	Cords	Cords	Cords	Cords	Cords
All mt'l:[1]							
Lumber	197,700	637,100	8,200	183,500	148,800	8,500	1,183,800
Veneer	- -	- -	- -	700	19,800	4,600	25,100
Cooperage	1,300	13,200	- -	400	1,200	- -	16,100
Pulpwood	61,900	137,900	- -	400	25,900	1,400	227,500
Excelsior	100	2,200	- -	- -	- -	- -	2,300
Mine timbers	- -	200	- -	400	- -	300	900
Fuel wood	123,300	99,900	- -	209,200	49,500	61,400	543,300
Fence posts	300	100	17,700	9,600	- -	24,500	52,200
Poles, piles	- -	8,700	- -	- -	- -	300	9,000
Hewn ties	- -	- -	- -	36,300	- -	- -	36,300
Misc.	- -	- -	1,400	1,200	100	2,800	5,500
Total	384,600	899,300	27,300	441,700	245,300	103,800	2,102,000

1/Includes the sawlog portion of saw-timber trees, the usable volume in the upper stems of softwood saw-timber and in small trees from 5.0 inches d.b.h. to saw-timber size.

Table 14. - The effect of growth, mortality, and commodity drain upon the forest growing stock in the Virginia Piedmont, 1940

IN BOARD FEET (INT. ¼-INCH RULE)

Species and diameter group	Growing stock Jan. 1, 1940	Gross growth	Mortality	Net growth	Commodity drain	Net change	Growing stock Jan. 1, 1941
	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.
Softwoods:							
10-12 inches	2,033.9	174.3	7.8	166.5	154.4	12.1	2,046.0
14-18 inches	948.3	120.4	6.2	114.2	137.2	-23.0	925.3
20 and over	152.2	14.3	2.1	12.2	30.1	-17.9	134.3
Total	3,134.4	309.0	16.1	292.9	321.7	-28.8	3,105.6
Hardwoods:							
14-18 inches	2,576.7	223.7	5.5	218.2	88.5	129.7	2,706.4
20 and over	1,787.9	117.0	3.6	113.4	58.3	55.1	1,843.0
Total	4,364.6	340.7	9.1	331.6	146.8	184.8	4,549.4
All species	7,499.0	649.7	25.2	624.5	468.5	156.0	7,655.0

IN CUBIC FEET

	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:							
6-8 inches	702.2	42.4	4.6	37.8	16.8	21.0	723.2
10-12 inches	570.4	47.2	2.2	45.0	41.8	3.2	573.6
14-18 inches	200.3	27.8	1.3	26.5	28.9	-2.4	197.9
20 and over	27.4	2.8	0.3	2.5	5.6	-3.1	24.3
Total	1,500.3	120.2	8.4	111.8	93.1	18.7	1,519.0
Hardwoods:							
6-12 inches	1,435.1	60.7	3.6	57.1	24.0	33.1	1,468.2
14-18 inches	496.6	41.9	1.0	40.9	16.7	24.2	520.8
20 and over	301.6	19.5	0.8	18.7	10.3	8.4	310.0
Total	2,233.3	122.1	5.4	116.7	51.0	65.7	2,299.0
All species	3,733.6	242.3	13.8	228.5	144.1	84.4	3,818.0

Table 1. - Land use in the Virginia Mountains, 1940

Land use	Land area	
	Acres	Percent
Forest:		
Commercial	4,664,900	51.2
Public reserved	107,000	1.2
Non-commercial	184,400	2.0
Total	4,956,300	54.4
Non-forest:		
Crop-land	1,649,000	18.1
Abandoned crop-land	77,600	0.9
Pasture	2,209,100	24.2
Marsh	- -	- -
Other	214,000	2.4
Total	4,149,700	45.6
All uses	9,106,000	100.0

Table 2. - Forest area of the Virginia Mountains by forest types and conditions, 1940

Forest type	Forest condition			Total	
	Saw timber	Cord-wood	Repro-duction		
	Acres	Acres	Acres	Acres	Percent
Softwoods:					
Loblolly pine	- -	- -	- -	- -	- -
Shortleaf pine[1/]	234,800	324,500	14,600	573,900	12.3
Virginia pine	71,500	174,500	39,100	285,100	6.1
White pine[2/]	138,700	59,800	1,600	200,100	4.3
Total	445,000	558,800	55,300	1,059,100	22.7
Hardwoods:					
Bottomland hardwood[3/]	8,100	17,000	800	25,900	0.5
Cove hardwood[4/]	221,100	184,400	3,300	408,800	8.8
Upland hardwood	1,292,800	1,808,800	69,500	3,171,100	68.0
Total	1,522,000	2,010,200	73,600	3,605,800	77.3
All types	1,967,000	2,569,000	128,900	4,664,900	100.0

1/Includes redcedar, 45,100 acres.

2/Includes hemlock, 74,400 acres.

3/Stream margin hardwoods only.

4/Includes northern hardwoods, 128,400 acres.

Table 3. - Species distribution of forest types in the Virginia Mountains, expressed in percent of net cubic volume, 1940

Species	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
Softwoods:								
Pond pine	- -	- -	- -	- -	- -	- -	- -	- -
Loblolly pine	- -	- -	- -	- -	- -	- -	- -	- -
Shortleaf pine	- -	65.9	6.9	2.2	- -	0.1	3.2	8.4
Virginia pine	- -	3.1	55.0	0.8	1.0	0.2	0.9	3.6
White pine	- -	2.5	4.0	29.6	2.5	0.7	1.4	3.8
Hemlock	- -	0.3	0.1	25.8	1.8	1.5	0.4	2.5
Redcedar	- -	2.3	0.6	0.2	0.9	0.2	0.1	0.4
White-cedar	- -	- -	- -	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -	- -	- -	- -
Hardwoods:								
Red maple	- -	0.1	0.3	1.9	7.5	3.7	2.0	2.0
Blackgum	- -	0.2	0.2	0.4	0.8	1.4	2.4	1.8
Sweetgum	- -	- -	- -	- -	- -	- -	- -	- -
Yellowpoplar	- -	1.4	1.5	2.9	26.9	22.9	4.7	6.6
Northern red oak	- -	0.8	0.9	3.1	7.7	12.4	8.7	7.6
Other red oaks	- -	7.5	10.5	6.9	3.6	2.4	18.3	14.0
White oak	- -	4.3	0.5	7.8	- -	- -	0.2	0.2
Chestnut oak	- -	7.4	4.7	5.0	2.2	3.8	22.9	16.7
Other white oaks	- -	0.4	10.0	negl.	4.6	4.2	15.4	12.1
Birch	- -	negl.	negl.	1.7	0.6	4.5	0.6	1.1
Beech	- -	- -	- -	- -	- -	- -	- -	- -
Hickory	- -	0.9	2.0	2.0	- -	5.3	8.5	6.6
Cherry-walnut	- -	0.2	0.1	0.2	6.5	2.1	1.1	1.0
Sugar maple	- -	0.1	negl.	2.0	3.1	6.7	1.0	1.7
Ash	- -	0.2	0.2	0.3	1.0	2.3	0.6	0.7
Dogwood	- -	negl.	0.2	negl.	0.4	0.2	0.1	0.1
Black locust	- -	1.0	1.2	0.7	2.4	3.1	3.2	2.7
Other hardwoods	- -	0.6	0.7	5.7	25.3	20.8	3.1	5.3
Scrub hardwoods	- -	0.8	0.4	0.8	1.2	1.5	1.2	1.1
All species	- -	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 4. - Net board-foot volume (Int. ¼-inch rule) in the Virginia Mountains by species and forest conditions, 1940

Species	Forest condition		Total	
	Saw timber	Cordwood[1]		
	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:				
Loblolly pine	- -	- -	- -	- -
Shortleaf pine	413,600	96,000	509,600	10.3
Virginia pine	101,600	29,000	130,600	2.6
White pine	301,800	26,500	328,300	6.6
Hemlock[2]	228,500	11,500	240,000	4.8
Redcedar	8,300	3,100	11,400	0.2
White-cedar	- -	- -	- -	- -
Cypress	- -	- -	- -	- -
Total	1,053,800	166,100	1,219,900	24.5
Hardwoods:				
Red maple	58,300	4,200	62,500	1.3
Blackgum	109,200	11,400	120,600	2.4
Sweetgum	- -	- -	- -	- -
Yellowpoplar	326,500	21,500	348,000	7.0
Northern red oak	450,300	23,900	474,200	9.5
Other red oaks	498,900	43,100	542,000	10.9
White oak	674,500	21,800	696,300	14.0
Chestnut oak	760,200	44,500	804,700	16.2
Other white oaks	6,300	1,100	7,400	0.1
Birch	34,500	2,800	37,300	0.7
Beech	- -	- -	- -	- -
Hickory	220,900	15,200	236,100	4.8
Cherry-walnut	42,400	7,800	50,200	1.0
Sugar maple	92,400	4,100	96,500	1.9
Ash	27,800	1,900	29,700	0.6
Other hardwoods[3]	236,400	14,000	250,400	5.1
Total	3,538,600	217,300	3,755,900	75.5
All live species	4,592,400	383,400	4,975,800	100.0
Dead chestnut	444,400	314,000	758,400	- -
All species	5,036,800	697,400	5,734,200	- -

1/Includes the saw-timber volume, 1,400 M board feet in the reproduction condition.

2/Includes red spruce, 2,700 M board feet.

3/Includes basswood, 68,100 M board feet.

Table 5. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) in the Virginia Mountains by species and diameter classes, 1940

Species	Diameter-class (inches)			Total	
	10-12	14-18	20+		
	M bd. ft.	M bd. ft.	M bd. ft.	M bd. ft.	Percent
Softwoods:					
Loblolly pine	- -	- -	- -	- -	- -
Shortleaf pine	256,700	200,400	52,500	509,600	10.3
Virginia pine	104,300	26,300	- -	130,600	2.6
White pine	92,100	131,500	104,700	328,300	6.6
Hemlock	31,400	76,200	132,400	240,000	4.8
Redcedar	7,900	3,500	- -	11,400	0.2
White-cedar	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -
Total	492,400	437,900	289,600	1,219,900	24.5
Hardwoods:					
Red maple	- -	33,900	28,600	62,500	1.3
Blackgum	- -	77,100	43,500	120,600	2.4
Sweetgum	- -	- -	- -	- -	- -
Yellowpoplar	- -	195,600	152,400	348,000	7.0
Northern red oak	- -	207,700	266,500	474,200	9.5
Other red oaks	- -	364,400	177,600	542,000	10.9
White oak	- -	292,400	403,900	696,300	14.0
Chestnut oak	- -	386,700	418,000	804,700	16.2
Other white oaks	- -	5,100	2,300	7,400	0.1
Birch	- -	22,800	14,500	37,300	0.7
Beech	- -	- -	- -	- -	- -
Hickory	- -	149,700	86,400	236,100	4.8
Cherry-walnut	- -	31,200	19,000	50,200	1.0
Sugar maple	- -	39,200	57,300	96,500	1.9
Ash	- -	19,200	10,500	29,700	0.6
Other hardwoods	- -	145,900	104,500	250,400	5.1
Total	- -	1,970,900	1,785,000	3,755,900	75.5
All live species	492,400	2,408,800	2,074,600	4,975,800	100.0
Dead chestnut	- -	376,800	381,600	758,400	- -
All species	492,400	2,785,600	2,456,200	5,734,200	- -

Table 6. - Net board-foot volume (Int. $\frac{1}{4}$-inch rule) per acre in the Virginia Mountains by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Loblolly pine	Shortleaf pine	Virginia pine	White pine	Bottomland hardwood	Cove hardwood	Upland hardwood	
	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.	Bd.ft.
Saw timber:								
Loblolly and shortleaf pines	- -	1,220	190	90	- -	negl.	80	210
Virginia pine	- -	30	1,080	10	40	10	10	50
Other softwoods	- -	90	180	2,760	150	100	80	270
Oaks	- -	200	550	630	480	850	1,560	1,220
Gums and yellowpoplar	- -	50	50	100	1,330	650	200	220
Other hardwoods	- -	10	50	340	800	1,200	300	360
All live species	- -	1,600	2,100	3,930	2,800	2,810	2,230	2,330
Dead chestnut	- -	40	10	140	- -	300	270	230
Cordwood:								
Loblolly and shortleaf pines	- -	120	20	30	- -	negl.	20	40
Virginia pine	- -	10	60	10	- -	negl.	10	10
Other softwoods	- -	20	20	220	10	20	10	10
Oaks	- -	10	10	40	40	40	60	50
Gums and yellowpoplar	- -	- -	negl.	- -	- -	60	10	10
Other hardwoods	- -	negl.	negl.	20	80	70	20	20
All live species	- -	160	110	320	130	190	130	140
Dead chestnut	- -	20	10	70	- -	160	140	120
All conditions:								
Loblolly and shortleaf pines	- -	570	60	70	- -	negl.	50	110
Virginia pine	- -	10	320	10	10	10	10	30
Other softwoods	- -	50	60	1,980	50	60	40	130
Oaks	- -	90	150	450	180	480	670	540
Gums and yellowpoplar	- -	20	10	70	420	380	90	100
Other hardwoods	- -	10	10	240	310	680	130	160
All live species	- -	750	610	2,820	970	1,610	990	1,070
Dead chestnut	- -	30	10	120	- -	230	200	160

Table 7. - Distribution of saw-timber area and volume (Int. $\frac{1}{4}$-inch rule) in the Virginia Mountains by volume-per-acre classes and forest types, 1940

Volume-per-acre class (board feet)	Saw-timber area		Saw-timber volume	
	Acres	Percent	M bd. ft.	Percent
Softwood types:				
Less than 2,000	271,300	61.0	295,800	27.6
2,000-3,999	100,300	22.5	274,500	25.6
4,000-5,999	35,100	7.9	164,600	15.4
6,000-7,999	22,000	4.9	153,100	14.3
8,000-9,999	7,300	1.7	64,800	6.0
10,000 and over	9,000	2.0	118,400	11.1
Total	445,000	100.0	1,071,200	100.0
Hardwood types:				
Less than 2,000	918,400	60.3	1,024,700	29.1
2,000-3,999	370,100	24.3	1,042,500	29.6
4,000-5,999	134,700	8.9	646,800	18.4
6,000-7,999	56,400	3.7	385,800	11.0
8,000-9,999	31,000	2.0	275,100	7.8
10,000 and over	11,400	0.8	146,300	4.1
Total	1,522,000	100.0	3,521,200	100.0

Table 8. - Net cordwood volume in the Virginia Mountains by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	M cords	M cords	M cords	M cords	M cords
Softwoods:					
Loblolly pine	- -	- -	- -	- -	- -
Shortleaf pine	1,347.3	418.5	907.3	369.5	3,042.6
Virginia pine	357.3	113.6	619.8	190.6	1,281.3
White pine	734.0	163.1	189.1	104.9	1,191.1
Hemlock	537.6	99.9	96.2	83.2	816.9
Redcedar	30.0	- -	70.6	0.9	101.5
White-cedar	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -
Total	3,006.2	795.1	1,883.0	749.1	6,433.4
Hardwoods:					
Red maple	175.9	103.4	404.3	596.3	1,279.9
Blackgum	356.6	133.6	153.2	430.4	1,073.8
Sweetgum	- -	- -	- -	- -	- -
Yellowpoplar	896.0	459.7	1,023.4	415.1	2,794.2
Northern red oak	1,224.2	682.7	867.0	838.0	3,611.9
Other red oaks	1,575.8	837.4	2,682.8	1,229.2	6,325.2
White oak	1,804.0	1,025.6	1,458.0	1,097.4	5,385.0
Chestnut oak	2,391.9	1,299.7	2,670.7	4,190.0	10,552.3
Other white oaks	21.9	11.8	53.0	46.8	133.5
Birch	100.6	59.5	218.6	291.1	669.8
Beech	- -	- -	- -	- -	- -
Hickory	709.8	395.8	1,297.0	603.2	3,005.8
Cherry-walnut	129.5	66.2	177.0	83.1	455.8
Sugar maple	259.2	158.5	155.1	307.2	880.0
Ash	76.7	37.3	150.0	115.7	379.7
Dogwood	- -	- -	53.4	28.5	81.9
Black locust	- -	- -	1,096.0	185.0	1,281.0
Other merchantable hardwoods	696.2	359.7	775.2	1,254.9	3,086.0
Scrub hardwoods	- -	- -	- -	464.0	464.0
Total	10,418.3	5,630.9	13,234.7	12,175.9	41,459.8
All live species	13,424.5	6,426.0	15,117.7	12,925.0	47,893.2
Dead chestnut	2,552.5	1,083.0	2,174.4	904.4	6,714.3
All species	15,977.0	7,509.0	17,292.1	13,829.4	54,607.5

Table 9. - Net cordwood volume in the Virginia Mountains by species and diameter classes, 1940[1/]

Species	Diameter class (inches)				Total	
	6-8	10-12	14-18	20+		
	M cords	M cords	M cords	M cords	M cords	Percent
Softwoods:						
Loblolly pine	- -	- -	- -	- -	- -	- -
Shortleaf pine	907.3	1,020.1	608.9	136.8	2,673.1	9.1
Virginia pine	619.8	394.0	76.9	- -	1,090.7	3.7
White pine	189.1	309.9	347.0	240.2	1,086.2	3.7
Hemlock	96.2	117.9	208.3	311.3	733.7	2.5
Redcedar	70.6	21.7	8.3	- -	100.6	0.4
White-cedar	- -	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -	- -
Total	1,883.0	1,863.6	1,249.4	688.3	5,684.3	19.4
Hardwoods:						
Red maple	237.6	166.7	98.4	77.5	580.2	2.0
Blackgum	52.5	100.7	241.1	115.5	509.8	1.7
Sweetgum	- -	- -	- -	- -	- -	- -
Yellowpoplar	460.4	563.0	533.9	362.1	1,919.4	6.6
Northern red oak	321.7	545.3	583.8	640.4	2,091.2	7.1
Other red oaks	1,247.4	1,435.4	1,110.3	465.5	4,258.6	14.5
White oak	646.5	811.5	804.2	999.8	3,262.0	11.1
Chestnut oak	1,205.3	1,465.4	1,202.8	1,189.1	5,062.6	17.3
Other white oaks	22.6	30.4	15.5	6.4	74.9	0.3
Birch	95.5	123.1	65.9	34.7	319.2	1.1
Beech	- -	- -	- -	- -	- -	- -
Hickory	548.2	748.8	470.0	239.8	2,006.8	6.8
Cherry-walnut	72.0	105.0	84.8	44.7	306.5	1.0
Sugar maple	78.9	76.2	112.2	147.0	414.3	1.4
Ash	74.6	75.4	51.8	24.9	226.7	0.8
Dogwood	45.0	5.6	2.8	- -	53.4	0.2
Black locust	515.5	366.5	166.7	47.3	1,096.0	3.7
Other merch. hdwds.	314.1	461.1	432.5	263.7	1,471.4	5.0
Total	5,937.8	7,080.1	5,976.7	4,658.4	23,653.0	80.6
All live species	7,820.8	8,943.7	7,226.1	5,346.7	29,337.3	100.0
Dead chestnut	794.8	1,379.6	1,678.9	1,778.0	5,631.3	- -
All species	8,615.6	10,323.3	8,905.0	7,124.7	34,968.6	- -

1/This table differs from table 8 in that the volume contained in cull trees and upper stems and limbs of saw-timber-size hardwoods is not included.

Table 10. - Cordwood volume per acre in the Virginia Mountains, by forest conditions and types, 1940

Forest condition and species group	Forest type							All types
	Lob-lolly pine	Short-leaf pine	Vir-ginia pine	White pine	Bottom-land hard-wood	Cove hard-wood	Up-land hard-wood	
	Cords	Cords	Cords	Cords	Cords	Cords	Cords	Cords
Saw timber:								
Loblolly and shortleaf pines	- -	5.52	.94	.31	- -	.01	.28	.90
Virginia pine	- -	.20	6.18	.10	.16	.02	.06	.30
Other softwoods	- -	.32	.65	8.38	.48	.33	.22	.83
Oaks	- -	1.70	3.66	3.15	1.88	2.95	6.66	5.28
Gums and yellowpoplar	- -	.15	.22	.50	3.63	2.81	.78	.90
Other hardwoods	- -	.24	.63	1.98	4.52	6.10	2.14	2.30
All live species	- -	8.13	12.28	14.42	10.67	12.22	10.14	10.51
Dead chestnut	- -	.47	.08	1.11	.14	1.94	1.95	1.64
Cordwood:								
Loblolly and shortleaf pines	- -	1.64	.19	.18	- -	.01	.16	.34
Virginia pine	- -	.11	1.71	.08	- -	.01	.05	.19
Other softwoods	- -	.17	.10	1.61	.17	.08	.05	.10
Oaks	- -	.55	.69	1.29	.42	.68	2.03	1.62
Gums and yellowpoplar	- -	negl.	.05	.13	.05	1.65	.17	.24
Other hardwoods	- -	.11	.16	.88	1.46	2.16	.74	.72
All live species	- -	2.58	2.90	4.17	2.10	4.59	3.20	3.21
Dead chestnut	- -	.23	.04	.68	- -	1.03	1.11	.89
All conditions:								
Loblolly and shortleaf pines	- -	3.23	.38	.27	- -	.01	.21	.58
Virginia pine	- -	.15	2.83	.09	.05	.02	.05	.23
Other softwoods	- -	.23	.23	6.30	.27	.21	.12	.41
Oaks	- -	1.02	1.44	2.58	.87	1.91	3.92	3.16
Gums and yellowpoplar	- -	.06	.09	.39	1.17	2.28	.42	.52
Other hardwoods	- -	.16	.28	1.64	2.42	4.29	1.31	1.39
All live species	- -	4.85	5.25	11.27	4.78	8.72	6.03	6.29
Dead chestnut	- -	.33	.05	.98	.04	1.52	1.45	1.21

Table 11. - Net cubic-foot volume of all sound material in the Virginia Mountains by species and sources of material, 1940

Species	Saw-timber trees		Cord-wood	Cull trees	All material
	Sawlogs	Upper stems			
	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:					
Loblolly pine	- -	- -	- -	- -	- -
Shortleaf pine	97.8	29.8	62.8	25.6	216.0
Virginia pine	27.9	7.9	46.2	13.9	95.9
White pine	57.8	12.2	14.5	8.1	92.6
Hemlock	42.6	7.9	7.4	6.6	64.5
Redcedar	2.3	- -	5.7	negl.	8.0
White-cedar	- -	- -	- -	- -	- -
Cypress	- -	- -	- -	- -	- -
Total	228.4	57.8	136.6	54.2	477.0
Hardwoods:					
Red maple	11.9	5.9	26.9	39.2	83.9
Blackgum	22.9	7.8	10.4	29.7	70.8
Sweetgum	- -	- -	- -	- -	- -
Yellowpoplar	57.7	25.9	64.1	27.0	174.7
Northern red oak	80.7	38.9	52.6	53.8	226.0
Other red oaks	102.4	49.4	163.0	76.9	391.7
White oak	120.0	58.1	94.2	71.4	343.7
Chestnut oak	149.3	71.1	156.3	259.5	636.2
Other white oaks	1.4	0.7	3.1	2.8	8.0
Birch	7.0	3.6	14.2	19.6	44.4
Beech	- -	- -	- -	- -	- -
Hickory	46.9	21.4	79.3	37.6	185.2
Cherry-walnut	8.7	3.8	10.8	5.3	28.6
Sugar maple	17.7	9.4	10.3	20.8	58.2
Ash	5.1	2.2	9.1	7.2	23.6
Dogwood	- -	- -	2.9	1.5	4.4
Black locust	- -	- -	61.0	10.1	71.1
Other merchantable hardwoods	47.2	21.9	51.4	82.0	202.5
Scrub hardwoods	- -	- -	- -	25.4	25.4
Total	678.9	320.1	809.6	769.8	2,578.4
All species	907.3	377.9	946.2	824.0	3,055.4

Table 12. - Volume of wood processed in the Virginia Mountains by the primary forest-products industries, 1940

Product	Number of plants	Production or consumption					
		Loblolly, shortleaf, & Virginia pines	Other soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	Total
		M bd. ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd. ft.
Lumber[1]	999	11,000	26,700	100,800	20,900	38,100	197,500
Veneer	5	- -	500	1,200	2,900	1,000	5,600
		Cords	Cords	Cords	Cords	Cords	Cords
Cooperage	4	- -	- -	2,300	700	100	3,100
Tanning ext.	9	- -	- -	8,400	- -	97,900	106,300
Mine timbers	- -	8,900	1,200	34,800	14,400	41,500	100,800
Fuel wood	- -	100,200	41,100	514,000	85,500	302,300	1,043,100
Fence posts	- -	100	1,800	300	- -	33,300	35,500
Misc.[2]	15	251,200	- -	20,600	62,600	20,900	355,300
		M pcs.	M pcs.	M pcs.	M pcs.	M pcs.	M pcs.
Hewn ties	- -	- -	- -	51	- -	- -	51

1/Includes lumber tally equivalent of all material produced in sawmills.

2/Includes 3 pulp mills, 5 handle plants, 1 wood turning plant, 3 insulator pin plants, 1 shingle mill, 1 box plant, and 1 mine wedge plant.

Table 13. - Volume of wood cut from the sound-tree growing stock (commodity drain) in the Virginia Mountains, 1940

Product and source of material	Virginia pine	Loblolly and shortleaf pines	Other soft-woods	Oaks	Gums, yellow-poplar	Other hard-woods	Total
	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.	M bd.ft.
Sawlogs:							
Lumber	3,100	6,300	25,900	92,000	19,100	22,400	168,800
Veneer	- -	- -	100	700	900	500	2,200
Cooperage	- -	- -	- -	1,300	- -	100	1,400
Pulpwood	4,400	5,900	- -	2,700	2,100	1,700	16,800
Mine timbers	100	1,200	200	2,300	500	2,800	7,100
Fuel wood	800	1,800	- -	5,200	200	1,000	9,000
Fence posts	- -	- -	300	- -	- -	500	800
Hewn ties	- -	- -	- -	2,400	- -	- -	2,400
Misc.	- -	- -	400	200	200	2,200	3,000
Total	8,400	15,200	26,900	106,800	23,000	31,200	211,500
	Cords	Cords	Cords	Cords	Cords	Cords	Cords
All mt'l:[1]							
Lumber	10,300	19,900	65,600	271,500	53,800	64,600	485,700
Veneer	- -	- -	200	1,700	2,400	1,400	5,700
Cooperage	- -	- -	- -	3,500	400	100	4,000
Pulpwood	25,500	34,100	- -	17,100	22,300	10,900	109,900
Mine timbers	600	8,200	1,200	34,800	14,500	41,500	100,800
Fuel wood	8,100	16,600	- -	97,800	15,900	27,400	165,800
Fence posts	- -	100	1,700	100	- -	28,400	30,300
Hewn ties	- -	- -	- -	9,200	- -	- -	9,200
Misc.	- -	- -	1,900	1,000	300	9,100	12,300
Total	44,500	78,900	70,600	436,700	109,600	183,400	923,700

1/Includes the sawlog portion of saw-timber trees, the usable volume in the upper stems of softwood saw-timber and in small trees from 5.0 inches d.b.h. to saw-timber size.

Table 14. - The effect of growth, mortality, and commodity drain upon the forest growing stock in the Virginia Mountains, 1940

IN BOARD FEET (INT. ¼-INCH RULE)

Species and diameter group	Growing stock Jan. 1, 1940	Gross growth	Mortality	Net growth	Commodity drain	Net change	Growing stock Jan. 1, 1941
	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.	Million bd. ft.
Softwoods:							
10-12 inches	476.2	33.6	2.4	31.2	14.9	16.3	492.5
14-18 inches	441.4	23.2	5.2	18.0	21.6	-3.6	437.8
20 and over	294.9	14.3	5.6	8.7	14.0	-5.3	289.6
Total	1,212.5	71.1	13.2	57.9	50.5	7.4	1,219.9
Hardwoods:							
14-18 inches	1,948.7	104.9	4.3	100.6	78.5	22.1	1,970.8
20 and over	1,787.9	85.2	5.5	79.7	82.5	-2.8	1,785.1
Total	3,736.6	190.1	9.8	180.3	161.0	19.3	3,755.9
All species	4,949.1	261.2	23.0	238.2	211.5	26.7	4,975.8

IN CUBIC FEET

	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.	Million cu. ft.
Softwoods:							
6-8 inches	133.5	7.3	1.0	6.3	3.2	3.1	136.6
10-12 inches	133.6	9.0	0.8	8.2	4.2	4.0	137.6
14-18 inches	94.9	5.3	1.1	4.2	4.6	-0.4	94.5
20 and over	55.0	2.6	1.0	1.6	2.6	-1.0	54.0
Total	417.0	24.2	3.9	20.3	14.6	5.7	422.7
Hardwoods:							
6-12 inches	778.1	39.5	2.4	37.1	17.8	19.3	797.4
14-18 inches	380.0	19.9	0.9	19.0	14.8	4.2	384.2
20 and over	307.3	14.7	1.0	13.7	14.1	-0.4	306.9
Total	1,465.4	74.1	4.3	69.8	46.7	23.1	1,488.5
All species	1,882.4	98.3	8.2	90.1	61.3	28.8	1,911.2

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DEFINITION OF TERMS

Land-use Classes

Commercial forest. -- Forest land having qualities essential to the production of merchantable timber.

Non-commercial forest. -- Forest land lacking qualities essential to the production of merchantable timber.

Public reserved forest. -- Forest land in federal and state ownership upon which commercial timber cutting is prohibited.

Crop-land. -- Non-forest land used for production of farm crops within the last five years.

Abandoned crop-land. -- Land once cultivated, now evidently abandoned for farm crops, but not bearing forest cover.

Pasture. -- Cleared, fenced lands that are used primarily for grazing.

Marsh. -- Low, boggy, non-forested areas bordering water bodies and streams, where drainage is too poor to permit agricultural use.

Other non-forest. -- Includes areas within the corporate limits and suburban or industrial sections of towns and cities; power, rail, and highway rights-of-way; sand dunes, water areas, and other miscellaneous non-forest land.

Forest Types

Loblolly pine. -- Stands in which softwoods make up 25 percent or more of the dominant and codominant trees with loblolly pine predominating. Includes pond pine in the Coastal Plain.

Shortleaf pine. -- Stands in which softwoods make up 25 percent or more of the dominant and codominant trees with shortleaf pine predominating. Redcedar is included here, although it forms a distinct type over limited areas.

Virginia pine. -- Stands in which softwoods make up 25 percent or more of the dominant and codominant trees with Virginia pine predominating.

White pine. -- Stands in which softwoods make up 25 percent or more of the dominant and codominant trees with white pine predominating.

Bottomland hardwoods. -- Stands of mixed hardwoods in swamps and along streams in which hardwood species make up 75 percent or more of the dominant and codominant trees. Includes cypress and white-cedar in the Coastal Plain.

Cove hardwoods. -- Stands in which yellowpoplar, cucumber, red maple, white ash, black birch, and basswood make up 75 percent or more of the dominant and codominant trees, usually found on lower north slopes and in coves along small streams. Includes stands of northern hardwoods in which sugar maple, beech, and yellow birch make up 75 percent or more of the overstory.

Upland hardwoods. -- Stands on well drained, upland sites in which mixed oaks and other hardwoods constitute 75 percent or more of the dominant and codominant trees.

Diameters

D.b.h. (diameter at breast height). -- Diameter in inches, outside bark, measured at 4½ feet from the ground.

Diameter class. -- All trees were tallied by 2-inch diameter classes, each class including diameters 1.0 inch below and 0.9 inch above the stated midpoint; e.g., trees 7.0 to and including 8.9 inches are placed in the 8-inch class.

Forest Condition

Saw timber. -- Stands containing sufficient volume in merchantable species to make at least 600 board feet per acre in the pine types and 1,000 board feet per acre in the hardwood types.

Cordwood. -- Stands of second growth in which the total saw-timber volume is less than the required minimum for sawlog stands, with the remaining trees averaging more than 1.0-inch d.b.h.

Reproduction. -- Stands of young second-growth with little or no volume in trees over 1" in diameter, but bearing at least 80 well distributed seedlings per acre.

Tree Classification

Sound saw-timber tree. -- A softwood tree at least 9.0-inches d.b.h., and a hardwood tree at least 13.0-inches d.b.h. with not less than one sound butt log 12 feet long, or with 50 percent of the gross volume of the tree in sound saw timber.

Sound cordwood tree. -- Any sound, straight boled tree between 1.0-inch d.b.h. and sawlog size.

Cull tree. -- Any tree that fails to qualify as a sound tree because of poor form, excessive limbiness, rot, or other defect.

Volume Estimates

Board-foot volume. -- The volume in board feet, measured by the International $\frac{1}{4}$-inch rule, exclusive of defect, of that portion of sound sawlog-size trees between the stump and the upper limit of merchantability for sawlogs.

Cordwood volume. -- The volume in standard cords of the sound portion of trees 5.0-inches d.b.h. and larger between stump and a minimum diameter of approximately 4.0-inches outside bark.

Cubic-foot volume. -- The solid cubic volume, excluding bark, of all material included in the cordwood estimate.

Growing stock. -- The volume of wood in living trees excluding that in cull trees and hardwood tops.

Standard cord. -- A stacked pile, measuring 4 ft. x 4 ft. x 8 ft., of round or split bolts, estimated to contain 90 cubic feet of softwood (wood and bark) or 80 cubic feet of hardwood (wood and bark).

International log rule. -- A rule for estimating the board-foot volume of four-foot log sections according to the formula $V = .905 (0.22D^2-0.71D)$. The taper allowance for computing the volume in log lengths greater than four feet is .5 inch per four-foot section.

Utilization

Commodity drain. -- The volume of wood cut in the designated area from sound living trees, adjusted for such cutting practices as may over-cut or under-cut the basic volume tables, and excluding the cordwood volume cut from tops of hardwoods.